STATE OF ARIZONA
SIGNIFICANT AMENDMENT TO
AQUIFER PROTECTION PERMIT NO. P- 100421
PLACE ID # 2058, LTF 46970

1.0 AUTHORIZATION

In compliance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 2, Articles 1, 2 and 3, Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Articles 1 and 2, A. A. C. Title 18, Chapter 11, Article 4 and amendments thereto, and the conditions set forth in this permit, BHP Copper Inc. (BHP) is hereby authorized to close the San Manuel Mine facility located approximately 8 miles northwest of San Manuel, Pinal County, Arizona, over groundwater of the San Pedro Basin, in Township 8 South, Range 16 East, Sections 22, 25, 26, 27, 33, 34, 35, and 3; and Township 9 South, Range 16 East, Sections 2, 3, 4, 9, 10, 15, and 16 of the Gila and Salt River Base Line and Meridian.

This amendment replaces the original permit and all previous amendments and becomes effective on the date of the Water Quality Division Director's signature and shall be valid for the life of the facility (operational, closure, and post-closure periods), unless suspended or revoked pursuant to A.A.C. R18-9-A213. The permittee shall construct, operate and maintain the permitted facilities:

1. Following all the conditions of this permit including the design and operational information documented or referenced below, and
2. Such that Aquifer Water Quality Standards (AWQS) are not violated at the applicable point(s) of compliance (POC) set forth below, or if an AWQS for a pollutant has been exceeded in an aquifer at the time of permit issuance, that no additional degradation of the aquifer relative to that pollutant, and as determined at the applicable POC, occurs as a result of the discharge from the facility.

1.1 PERMITTEE INFORMATION

Facility Name: **BHP Copper, Inc. - San Manuel Mine**

Permittee:	**Mailing Address:**	**Facility's Street Address:**
BHP Copper, Inc. (BHP)	P.O. Box M San Manuel, AZ 85631	200 South Veterans Memorial Blvd San Manuel, AZ 85631

Facility Contact:
Mr. Jeff Parker, Manager, Sustainability and External Affairs (520) 219-3567

Emergency Telephone Number: (520) 419-2590

Latitude: 32° 41' 58" North **Longitude:** 110° 40' 16" West

Legal Description: Township 8 South, Range 16 East, Sections 22, 25, 26, 27, 33, 34, 35, and 3; and Township 9 South, Range 16 East, Sections 2, 3, 4, 9, 10, 15, and 16 of the Gila and Salt River Base Line and Meridian.

1.2 AUTHORIZING SIGNATURE

Joan Card, Director	**Amanda Stone, Director**
Water Quality Division	**Waste Programs Division**
Arizona Department of Environmental Quality	**Arizona Department of Environmental Quality**
Signed this _____day of _____, 2009	**Signed this _____day of _____, 2009**

THIS AMENDMENT SUPERSEDES ALL PREVIOUS AMENDMENTS

2.0 SPECIFIC CONDITIONS [A.R.S. §§ 49-203(4), 49-241(A)]

2.1 Facility / Site Description[A.R.S. § 49-243(K)(8)]

The site includes the following permitted discharging facilities:

The San Manuel Mine operated 51 years from 1948 until underground operations were suspended on June 25, 1999. Mine closure was declared by BHP Copper, Inc. (BHP) to ADEQ on January 22, 2002. The Mine operated two underground mine units for copper sulfide ore, an open pit for copper oxide ore, heap leach and in-situ leaching operations that recovered copper-bearing pregnant leach solution (PLS), and a solvent extraction-electrowinning (SX-EW) Plant. The collection of PLS from the Heap Leach Facility ceased on March 19, 2002.

During operations, 702.9 million tons of rock were mined and hoisted to the surface, including 27.6 million tons of development rock, 624.9 million tons of ore from the San Manuel unit, and 50.4 million tons of ore from the Kalamazoo unit. Approximately 121.5 million tons of ore and overburden were mined from the open pit. The copper ore from underground was crushed in a primary crusher at the Mine before shipment to the Plant Site for beneficiation and processing. The SX-EW Plant processed the PLS from the leaching operation.

The San Pedro River is the dominant surface water drainage feature in the region. The flow is intermittent in the vicinity of the mine and the Town of Mammoth, and depends on precipitation and base flow. Two ephemeral washes (Tucson Wash and Mammoth Wash) adjoin the Mine. With the exception of a limited area in the southeast portion of the No. 1 Stockpile, the entire Mine Site is above the 100-year floodplain.

Mine dewatering during the operating life of the underground mine resulted in formation of a significant cone of groundwater depression in the vicinity of the mine. Underground dewatering stopped on February 13, 2002. As of April 2006, the water level in the underground mine was 1,309 feet above mean sea level (amsl), or approximately 761 feet below the bottom of the open pit, and 1,075 to 1,256 feet below the surrounding groundwater table. Facilities within the mine area are currently within a hydraulic sink for local groundwater flow. Groundwater is currently recovering at a rate of less than 0.3 feet per day as measured at the No. 5 Shaft.

Prior to the closure announcement, BHP operated in accordance with aquifer protection permit (APP) No. P-100421, which was issued in 1991 for the Heap Leach Facility, SX-EW Plant, and three surface impoundments. On January 22, 2002, BHP notified ADEQ that an application for an area-wide closure APP would be prepared and submitted. ADEQ issued an "Other Amendment" to APP No. P-100421 on July 22, 2003, to incorporate the No. 1 Shaft and a temporary pipeline. On September 25, 2003, ADEQ received a request from BHP to withdraw the application for the area-wide APP. On July 17, 2004, BHP filed an application for the area-wide closure of the Mine. ADEQ issued a permit on August 16, 2006, authorizing the closure of the discharge facilities described below. This significant permit amendment incorporates the closed Wood and Solid Waste Landfills.

2.1.1 No. 1 Stockpile (D-210A) (Waste Rock Dump)

The No. 1 Stockpile is located east of the open pit. When operations ceased, this dump contained approximately 17 million cubic yards of material and consisted of upper and lower lobes joined to the pit by a narrow neck. The approximate dimensions were 3,100 feet long in an easterly direction, 700 to 2,450 feet wide, and 25 to 230 feet high for an area of approximately 99 acres. The No. 1 stockpile was constructed from overburden materials stripped during open pit development. Dump materials comprised barren San Manuel Formation, Cloudburst Formation, and barren leached cap bedrock. Approximately 10,000 cubic yards of this material was used to cover the re-graded Heap Leach Facility. The No. 1 Stockpile was subsequently re-graded with exterior side slopes of approximately 3H:1V, covered with one foot of soil, and revegetated. The stockpile was not subject to chemical or leaching agents or processes.

2.1.2 No. 1 Satellite Stockpile (D-210B) (Waste Rock Dump)

The No. 1 Satellite Stockpile is south of the No. 1 Stockpile and north of the pit escarpment. This stockpile consists of barren San Manuel Formation and mixed leach cap rock materials stripped during open pit development. The stockpile was not subject to chemical or leaching agents or processes. The No. 1 Satellite Stockpile was re-graded with exterior side slopes of approximately 3H:1V, covered with 1 foot of soil, and revegetated.

2.1.3 No. 1/No. 4 Shaft Waste Rock Dump (D-211A) (Waste Rock Dump)

The No. 1/No. 4 Shaft Waste Rock Dump is located northwest of the open pit and northeast of the Ridgeline Waste Rock Dump. The material in the No. 1/No. 4 Shaft Waste Rock Dump was mined between 1948 and 1954, during primary development of the No. 1 and No. 4 Shafts and the upper levels of the San Manuel underground workings. The dump was not subject to chemical or leaching agents or processes. To mitigate the potential for acidic rock drainage to impact the Tucson Wash, the sulfide waste rock on the western portion of the No. 1/No. 4 Shaft Waste Rock Dump was excavated and removed to the No. 3 Shaft Development Dump. The remaining dump area was re-graded with exterior side slopes of approximately 3H:1V, covered with 2 feet of soil, and revegetated.

2.1.4 Ridgeline Waste Rock Dump (D-211B) (Waste Rock Dump)

The Ridgeline Waste Rock Dump is located west of the open pit and southwest of the No. 1/No. 4 Shaft Waste Rock Dump. When operations ceased, the Ridgeline dump covered approximately 56 acres and contained approximately 4.2 million cubic yards of material, including approximately 2.9 million cubic yards of sulfidic quartz monzonite (QMS). The material placed in this dump consisted primarily of San Manuel Formation removed from a cut in a nearby hill and sulfidic QMS from shaft development. The dump was not subject to chemical or leaching agents or processes. Approximately 1,800,000 cubic yards of QMS were removed from the north portion of the dump to mitigate the potential for acidic rock drainage to impact the Tucson Wash. The Ridgeline Waste Rock Dump was re-graded with exterior side slopes of approximately 3H:1V. The residual sulfide materials were covered with 2 feet of soil, and the facility was revegetated.

2.1.5 In-Situ Mine (D-251A) (Solution Mining Area In and Below the Open Pit)

This facility includes the former operating area of the well field for the in-situ operation. The in-situ mine is situated within the open pit and originally consisted of an in-situ leach field with injection and production wells, solution pipelines, motor control centers, pumping stations, tanks, and other infrastructure. All of the injection and production infrastructure has been removed by BHP.

2.1.6 (Future) Pit Lake (D-251B) (Water Accumulation in the Open Pit)

This facility is the maximum future area of the Pit Lake. Currently, a small ephemeral pond forms in the sump at the bottom of the pit following a significant storm event. The water in the sump evaporates after a storm event.

2.1.7 Heap Leach Facility (D-262) (Heap Leach Pile)

The Heap Leach Facility (Heap) is located northeast of the open pit. When operations ceased, the Heap covered approximately 237 acres underlain by a synthetic, flexible membrane liner (FML), and contained approximately 93 million tons of spent ore material. As part of the BADCT closure method for the Heap, new FML extensions were installed in 2005 on the north and south sides of the Heap. The Heap was regraded to a slope of 3H:1V, covered with two feet of fill material from the No. 1 Stockpile, and revegetated. The regraded Heap now covers 250 acres and sheds clean stormwater to the Diversion Channel. The Heap process solution discharges via a Diversion Pipeline to the open pit area.

The Diversion Structure consists of a Diversion Channel and Diversion Pipeline that were constructed in 2005 as part of the Heap closure. The Diversion Structure consists of a 24-inch diameter pipeline to handle drain-down flow plus a Diversion Channel to handle runoff from storm events. Unimpacted storm water runoff from the Heap is conveyed via the Diversion Channel to the open pit. The Heap

drain-down flow is carried by the Diversion Pipeline where it discharges to the acid neutralizing San Manuel Formation and the underground workings via the escarpment in the San Manuel Formation on the south side of the open pit.

2.1.8 Heap PLS Pond (C-263) (Lined PLS Impoundment)

During operations, the Heap PLS Pond was a process solution impoundment lined with a 60-mil flexible membrane liner (FML)-lined impoundment located on the southeastern corner of the Heap Leach Facility. This impoundment received the drain-down of PLS from the perimeter collection ditch. Collected PLS was piped to the Plant Feed Pond, which fed the SX-EW Plant for recovery of contained copper. The Heap PLS Pond was removed and the former location was incorporated in the expanded, re-graded Heap Leach Facility.

2.1.9 No. 3 Shaft Development Dump (D-267A) (Waste Rock Dump)

The No. 3 Shaft Development Dump is located west of the open pit and within the open pit catchment area. The No. 3 Shaft Development Dump was constructed during development of the four ore production shafts in the No. 3 Shaft Area and the No. 5 Shaft. When operations ceased, this dump had an area of approximately 21 acres. The dump was not subject to chemical or leaching agents or processes. During re-grading of the Mine Site, material added to the No. 3 Shaft Development Dump included approximately 1.3 million cubic yards of sulfidic material removed from the Ridgeline Waste Rock Dump, 10,000 cubic yards from the No. 1 Stockpile, 261,000 cubic yards from the Main Gate Parking Lot Dump, and 96,800 cubic yards from the Sulfide Ore Stockpile. The additional material expanded the dump area to approximately 56 acres. The No. 3 Shaft Development Dump was subsequently re-graded with exterior side slopes of approximately 3H:1V and covered with 2 feet of San Manuel Formation cover materials to shed clean stormwater and mitigate the potential for acidic rock drainage. The re-graded dump was revegetated.

2.1.10 Sulfide Ore Stockpile (D-267B) (Waste Rock Dump)

During operations, sulfide rock was hauled from the open pit to the Sulfide Ore Stockpile on top of the Red Hill Waste Rock Dump on the west side of the open pit. At cessation of operations, the Sulfide Ore Stockpile was approximately 800 feet long in the northerly direction, 355 feet wide and 2 to 20 feet high with an approximate area of about 6 acres. The stockpile was not subject to chemical or leaching agents or processes. In 2005, the entire Sulfide Ore Stockpile (96,800 cubic yards) was removed and relocated to the No. 3 Shaft Development Dump to mitigate the potential for acidic rock drainage. The excavation area was re-contoured and revegetated.

2.1.11 Red Hill Waste Rock Dump (D-267C) (Waste Rock Dump)

The Red Hill Waste Rock Dump is located west of the pit and on the east edge of the Ridgeline Waste Rock Dump. It consists of barren San Manuel Formation and mixed leach cap materials. The total plan area of the dump is about 30 acres, 15 acres of which are side-slope areas. The dump was not subject to chemical or leaching agents or processes. After the removal of the overlying Sulfide Ore Stockpile and during the re-grading of the mine site, the Red Hill Waste Rock Dump was re-contoured and the top portion was revegetated.

2.1.12 Main Gate Parking Lot Dump (D-268) (Waste Rock Dump)

The Main Gate Parking Lot Dump was located west of the former Main Gate guard station. This dump was constructed of San Manuel Formation, QMS, concrete slabs, and clean construction debris. The dump was approximately 1,130 feet long, 230 to 440 feet wide, and 25 to 30 feet high for an area of approximately 13.5 acres. The dump was not subject to chemical or leaching agents or processes. During demolition and re-grading of the mine site, the Main Gate Parking Lot Dump was re-graded so the side slopes were 3H:1V, covered with a 2-foot-thick layer of San Manuel Formation material, and revegetated.

2.1.13 Plant Feed Pond (C-264) (Lined PLS Impoundment)

During operations, the Plant Feed Pond was a lined impoundment with a 30-mil XR5-reinforced

Hypalon FML overlying a bedding layer and compacted sub-grade material. The Plant Feed Pond was located southwest of the SX-EW Plant and north of the Oxide Truck Shop. During operations, it received PLS from the Heap PLS Pond. The SX-EW Plant was fed from this impoundment. It ceased receiving solution in March 2002 and was closed according to BADCT methods. During closure construction activities, the cleaned out, lined pond was used to store fresh water for dust control. The pond was closed according to a previously approved pond closure plan. The location was re-graded, covered with a 12-inch-thick compacted soil cover (low permeability) and at least 10 feet of fill, and revegetated.

2.1.14 Raffinate Pond (C-265) (Lined Impoundment)

During operations, the Raffinate Pond was a lined impoundment receiving the spent reagent from the SX-EW Plant referred to as raffinate. The raffinate was fed into the SX-EW Plant for extraction of copper from the PLS. During demolition and re-grading of the Mine Site, the Raffinate Pond was emptied of liquids and solids and the liner was removed and buried in a burial cell in the Heap Leach Facility according to the approved closure plan. The area of the former pond was re-graded, covered with a 12-inch-thick compacted soil cover (low permeability) and at least 10 feet of fill, and revegetated.

2.1.15 Upper Hamilton Pond (C-8A) (Non-Stormwater Impoundment)

During operations, this was one of three impoundments downgradient to the east of the No. 3 Shaft Area and southwest of the open pit. This impoundment was the uppermost pond receiving stormwater runoff and dust collection spray discharged from the crusher facility that has been removed. It was unlined and any overflow went to the Middle Hamilton Pond. The Upper Hamilton Pond was closed, and excavated, backfilled, and capped with a low-permeability cover in 2005. The former location is now buried by the material from the No. 3 Shaft Development Dump. It was re-contoured, covered with 2 feet of San Manuel Formation, and revegetated.

2.1.16 Middle Hamilton Pond (C-8B) (Non-Stormwater Impoundment)

During operations, this was the second of three impoundments downgradient to the east of the No. 3 Shaft Area and southwest of the open pit. This impoundment was the next lowest pond receiving impacted stormwater runoff and acted as a backup to the Upper Hamilton Pond. It was unlined and any overflow went to the Lower Hamilton Pond. The Middle Hamilton Pond was closed, excavated, backfilled, and capped with a low-permeability cover in 2005. The former location is now buried by the material from in the No. 3 Shaft Development Dump. It was re-contoured, covered with 2 feet of San Manuel Formation, and revegetated.

2.1.17 Lower Hamilton Pond (C-8C) (Non-Stormwater Impoundment)

During operations, this was the third of three impoundments downgradient to the east of the No. 3 Shaft Area and southwest of the open pit. This impoundment was the lowest pond receiving impacted stormwater runoff and acted as a backup to the Upper Hamilton Pond. It was unlined. The Lower Hamilton Pond was closed, excavated, backfilled, and capped with a low-permeability cover in 2005. The former location is now buried by material from the No. 3 Shaft Development Dump. It was re-contoured, covered with 2 feet of San Manuel Formation, and vegetated.

2.1.18 Dirkes Dike (C-46) (Non-Stormwater Impoundment)

During operations, Dirkes Dike was used as a clarification pond for mine dewatering water and was unlined. It measured 500 feet long by 210 feet wide by 9 feet deep. The facility location was west of the Lower Kalamazoo Engineering Building. During demolition and re-grading of the Mine Site, Dirkes Dike was closed. It was excavated, backfilled, re-graded, capped with a low permeability cover, and revegetated in 2005.

2.1.19 Julian's Catchment (C-45) (Non-Stormwater Impoundment)

Julian’s Catchment was a FML-lined pond about 70 feet long by 50 feet wide by 9 feet deep, and was designed to catch seeps from Dirkes Dike. The facility location was north of Dirkes Dike. During

demolition and re-grading of the Mine Site, Julian's Catchment was closed in 2005. It was excavated, the liner was removed, and the area was backfilled, re-graded, capped with a low permeability cover, and revegetated.

2.1.20 Bunkhouse Wash (C-200) (Non-Stormwater Impoundment)

During operations, this facility consisted of a series of unlined ditches and an unlined evaporation catchment. During operation, Bunkhouse Wash received stormwater and limited amounts of process discharges during upset conditions. These flows were directed to an evaporation catchment located on the northwest rim of the open pit. The Bunkhouse Wash was filled and covered in 2005 as part of the re-grading of the No. 1/No. 4 Shaft Waste Rock Dump.

2.1.21 Wash Pads (NA)

During operations, Wash Pad support facilities at the Mine Site included the Shaft Equipment Yard Wash Pad (C-5), Water Blast Area (C-75B), Pit Heavy Equipment (C-103A), and Pit Light Vehicle Wash Pad (C-103B). These facilities were closed including sludge removal and disposal in the Heap Leach Facility, transfer of oil residue to off-site disposal, destruction and burial of concrete structure, sampling and testing for ground contamination around and under the facility, and backfilling and reshaping the general area to shed storm water away from the facility site.

2.1.22 Oxide Truck Shop Wash Pad (C-97B)

This facility was closed through BADCT including sludge removal and disposal in the Heap Leach Facility, transfer of oil residue to burial on the Heap Leach pile, destruction and burial of concrete structure, sampling and testing for ground contamination around and under the facility, and backfilling and reshaping the general area to shed stormwater away from the facility site.

2.1.23 Truckload Station (C-214)

Small diesel spills occasionally discharged to the surface. During demolition and re-grading of the Mine Site, this facility was closed, buried lines were cut and capped, above-ground piping was removed, and the area was covered and revegetated. Sampling and testing indicated the extent of contaminated soil, which was removed until testing indicated the soil results were below groundwater protection levels.

2.1.24 No. 1 Shaft (C-269) (Temporary Discharge of PLS into No. 1 Shaft)

After the cessation of dewatering and copper recovery, residual PLS drain-down from the Heap Leach facility was diverted to the No. 1 Shaft. The PLS drain-down commingled with the mine water inside the shaft. Use of the No.1 Shaft was a temporary measure until the installation of the Diversion Channel and Diversion Pipeline as part of the closure of the Heap Leach Facility. This injection well was abandoned in 2004 by backfilling the shaft and installing a cement cap. No further discharge is possible because the shaft was backfilled and cemented.

2.1.25 Wood Landfill (E-19)

The Wood Landfill is approximately 2 acres, and is located in the No. 3 Shaft area within the Open Pit watershed basin. Formerly, mine timbers from the underground operation were collected and disposed over the embankment of a mine bench in San Manuel Formation. The closed landfill was re-graded and covered with local borrow materials to minimize infiltration and blowing debris. Diversion channels control and direct storm water run on/runoff to minimize infiltration and erosion, and to eliminate ponding on the closed disposal area.

2.1.26 Solid Waste Landfill (E-39)

The Solid Waste Landfill is approximately 3 acres, and is located north of the Wood Landfill within the subsidence zone of the Open Pit watershed basin. Non-hazardous office and shop waste, concrete, and non-contaminated construction debris was deposited in the landfill. Waste materials were

compacted and covered with local borrow materials during operations to minimize infiltration and blowing debris. The closed landfill was graded and covered with borrow materials. Drainage channels and berms control and direct storm water run-on/runoff to minimize infiltration and erosion, and to eliminate ponding on the closed landfill.

Annual Registration Fee [A.R.S. § 49-242]
The Annual Registration Fee for this permit is established by A.R.S. § 49-242 and is payable to ADEQ each year. The design flow is 125,000 gallons per day.

Financial Capability [A.R.S. § 49-243(N) and A.A.C. R18-9-A203]
The permittee has demonstrated financial capability under A.R.S. § 49-243(N) and A.A.C. R18-9-A203. The permittee shall maintain financial capability throughout the life of the facility. The estimated closure and post-closure costs are 29.2 million dollars, and $100,000 per year, respectively. The closure has been completed and only the post-closure cost of $100,000 per year remains to be satisfied for financial assurance. The financial capability was demonstrated pursuant to A.A.C. R18-9-A203(B)(1), utilizing a statement dated July 15, 2003, from Mr. Mike McGowan, Controller, BHP Copper Inc., San Manuel Operation, indicating that BHP is financially capable of meeting the closure and post-closure cost obligation for the San Manuel Mine site. This statement is supplemented by the current annual report for BHP's parent company, BHP Billiton.

2.2 Best Available Demonstrated Control Technology [A.R.S. § 49-243(B) and A.A.C. R18-9-A202(A)(5)]

2.2.1 Engineering Design
The Facilities List and BADCT descriptions are included in Section 4.1, Table 1A and 1B respectively.

2.2.2 Site-specific Characteristics
Not applicable

2.2.3 Pre-operational Requirements
Not applicable

2.2.4 Operational Requirements
A description of required inspections for discharging facilities is presented in Section 4.2, Table 1A. If damage is identified during an inspection that could cause or contribute to a discharge, proper repairs shall be promptly performed.

2.3 Discharge Limitations [A.R.S. §§ 49-201(14), 49-243 and A.A.C. R18-9-A205(B)]
The permittee shall operate and maintain all permitted facilities to prevent unauthorized discharges pursuant to A.R.S. §§ 49-201(12) resulting from failure or bypassing of BADCT pollutant control technologies including liner failure, uncontrollable leakage, berm breaches that result in an unexpected loss of fluid, accidental spills, or other unauthorized discharges. Liner failure in a single-lined impoundment is any condition that would result in leakage exceeding 550 gallons per day per acre. The discharge limitations in this section are not applicable to any discharge caused by precipitation in excess of a single 100-year, 24 hour storm event or process overflow during a power outage exceeding 24 hours in duration.

2.3.1 Discharge Limitations for the Heap Leach Facility and Diversion Structure
The perimeter drainage system for the Heap Leach Facility shall be constructed and operated in a manner to ensure adequate capacity to manage drain-down solutions and stormwater runoff and direct the flow to the underground workings and open pit, respectively. Residual heap materials and fluids shall not leave the heap liner or overtop the berms.

2.3.2 Discharge Limitations for the (Future) Pit Lake
Discharge limitations for the (future) Pit Lake shall be addressed after ADEQ has approved the closure

strategy and plan for this facility. The closure plan shall be submitted in 2006 as indicated by the Compliance Schedule in Section 3.0 Table 1A (This item was submitted and is noted in the Compliance Schedule).

2.4 Point(s) of Compliance [A.R.S. § 49-244]

The monitoring requirements for each POC well are listed in Section 4.2 Table 1A, 1B, and 1C. Monitoring requirements for the AL wells are listed in Section 4.2, Tables 1A, 1D, and 1E. The requirements for methane monitoring wells are listed in Section 2.5 and Section 2.5.5 and Section 4.2, Table 1A.

CON E-3 was the POC well for the San Manuel Mine site under the previous APP and shall remain a POC well. In addition, CR-1 shall be a POC well and existing wells BF-2 and BF-3 shall be alert level wells. Two other POCs are designated: POC wells BK-1 and BK-2 shall be installed on or before 2012. Well numbers LFM1, LFM2, and LFM3 are the designated methane monitoring wells.

The POCs are established by the following monitoring locations:

TABLE 2.4 POINT OF COMPLIANCE AND ALERT LEVEL WELLS FOR THE SAN MANUEL MINE

Well Number	Designation	Cadastral Location	Latitude North	Longitude West	ADWR Number
POINTS OF COMPLIANCE (POC) FOR THE SAN MANUEL MINE					
BK-1 [1]	Hazardous/Non-hazardous	D(8-16)36bba	32° 42’ 07”	110° 39’ 55”	Pending
BK-2 [1]	Hazardous/Non-hazardous	D(8-16)36bdd	32° 41’ 39”	110° 39’ 36”	Pending
CON E-3	Hazardous/Non-hazardous	D(8-16)25cbb	32° 42’ 22”	110° 40’ 09”	55-534257
CR-1	Hazardous/Non-hazardous	D(8-16)27dab	32° 41’ 43”	110° 41’ 43”	55-582785
GAS MONITORING WELLS FOR THE SAN MANUEL MINE					
LFM1	Gas monitoring	N/A	32° 41’ 11”	110° 41’ 37”	N/A
LFM2	Gas monitoring	N/A	32° 41’ 14”	110° 41’ 31”	N/A
LFM3	Gas monitoring	N/A	32° 41’ 11”	110° 41’ 24”	N/A

TABLE 2.4 POINT OF COMPLIANCE AND ALERT LEVEL WELLS FOR THE SAN MANUEL MINE (continued)

Well Number	Designation	Cadastral Location	Latitude North	Longitude West	ADWR Number
ALERT LEVEL (AL) WELLS FOR THE SAN MANUEL MINE					
BF-2	Hazardous/Non-hazardous	D(8-16)35aaa	32° 41’ 54”	110° 40’ 20”	55-582786
BF-3	Hazardous/Non-hazardous	D(8-16)35aaa	32° 41’ 52.9”	111° 40’ 17.4”	55-208525

[1] BK-1 and BK-2 are new POC wells, which shall be installed in accordance with the terms specified in the Compliance Schedule in Section 3.0, Table 1A. The proposed approximate latitude and longitudes of BK-1 and BK-2 were approved by ADEQ in 2005. The cadastral, latitude and longitude coordinates and Arizona Department of Water Resources (ADWR) well registration numbers shall be amended to the permit following well installation.

The Director may amend this permit to designate additional points of compliance if information on groundwater gradients or groundwater usage indicates the need.

2.5 Monitoring Requirements [A.R.S. § 49-243(K)(1), A.A.C. R18-9-A206(A)]

All monitoring required in this permit shall continue for the duration of the permit, regardless of the status of the facility. Methane gas monitoring at the Solid Waste Landfill may be re-evaluated by ADEQ; however, if sampling results remain low for three consecutive years. All sampling, preservation and holding times shall be in accordance with currently accepted standards of professional practice. Trip blanks, equipment blanks and duplicate samples shall also be obtained, and chain of custody procedures shall be followed, in accordance with currently accepted standards of professional practice. The permittee shall consult the most recent version of the ADEQ Quality Assurance Project Plan (QAPP) and EPA 40 CFR PART 136 for guidance in this regard. Copies of laboratory analyses and chain of custody forms shall be maintained at the permitted facility. Upon

request these documents shall be made immediately available for review by ADEQ personnel.

Soil gas monitoring shall be performed using a portable, real-time gas monitoring instrument. Sample results shall be recorded in a permanent log book or on a permanent log form that will be maintained at the permitted facility. Upon request, these documents shall be immediately available for review by ADEQ personnel.

2.5.1 Facility Closure Monitoring

The facility monitoring during closure consists of site inspections, discharge monitoring, and monitoring groundwater recovery and groundwater quality.

The site inspections and discharge monitoring requirements are listed in Section 4.2, Table 1A and 1F, respectively. Groundwater monitoring requirements are listed in Section 4.2, Tables 1B through 1E.

2.5.2 Discharge Monitoring

2.5.2.1 Process Solution and Mine Water

An analysis of the spent process solution (Diversion Pipeline Monitoring Point), No. 5 Shaft water, and Pit Lake shall be performed on an annual basis according to the following table:

TABLE 2.5.2.1 PROCESS WATER AND MINE WATER MONITORING POINTS

MONITORING POINT LOCATIONS	LATITUDE	LONGITUDE	MONITORING AND REPORTING FREQUENCY	MONITORING PARAMETERS
Diversion Pipeline Monitoring Point	32° 41' 55.82" N	110° 40' 21.81" W	Annual	Section 4.2, Table 1F
No. 5 Shaft	32° 41' 14" N	110° 40' 53" W	Annual	Section 4.2, Table 1F
Pit Lake	To Be Determined	To Be Determined	Annual	Section 4.2, Table 1F

2.5.3 Groundwater Monitoring and Sampling Protocols

Static water levels shall be measured and recorded prior to sampling. Wells shall be purged of at least three borehole volumes (as calculated using the static water level) or until field parameters (pH, temperature, conductivity) are stable, whichever represents the greater volume. If evacuation results in the well going dry, the well shall be allowed to recover to 80 percent of the original borehole volume, or for 24 hours, whichever is shorter, prior to sampling. If after 24 hours there is not sufficient water for sampling, the well shall be recorded as "dry" for the monitoring event. An explanation for reduced pumping volumes, a record of the volume pumped, and modified sampling procedures shall be reported and submitted with the Self-monitoring Report Form (SMRF).

Alternately, the permittee may conduct the sampling using the low-flow purging method as described in the ASTM International standard D 6771 -02 and EPA Ground-Water Issue 540/S-95/504 Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures. The well must be purged until indicator parameters stabilize. Indicator parameters shall include dissolved oxygen, turbidity, pH, temperature, and conductivity.

2.5.3.1 POC Well Replacement

There are two existing monitoring wells in the APP designated as hazardous/non-hazardous POC wells. Two additional hazardous/non-hazardous POC wells, referred to as BK-1 and BK-2, have not yet been installed as of January 2009, but a work plan and well design were approved by ADEQ in 2005. The wells shall be installed in accordance with the terms and conditions listed in the Compliance Schedule in Section 3.0, Table 1A. The new POC wells

shall be located in the Mammoth drainage downgradient from the No. 1 Stockpile and Heap Leach Facility. If there are changes to the approved well design, a report specifying the location and design of each well shall be submitted to GWS for approval a minimum of 30 days prior to installation. Each new POC well shall be constructed to monitor groundwater quality in the uppermost aquifer. Detailed geologic and well construction logs for each well shall be submitted to the GWS within 45 days of installation

In the event that one or more of the designated POC wells should become unusable or inaccessible due to damage, insufficient water in the well for more than two sampling events, or any other event, a replacement POC well shall be constructed and installed upon approval by ADEQ. If the replacement well is 50 feet or less from the original well, the ALs and/or AQLs calculated for the designated POC well shall apply to the replacement well. Otherwise, the ALs and/or AQLs shall be set following the provisions in Section 2.5.3.2 and Section 2.5.3.6 of this permit.

2.5.3.2 Ambient Groundwater Monitoring for POC Wells

Ambient groundwater monitoring has been completed in POC well CON E-3 and CR-1 and in AL wells BF-2 and BF-3. Proposed POC wells BK-1 and BK-2 shall be installed according to the Compliance Schedule in Section 3.0. Each sample shall be analyzed for the parameters listed in Section 4.2, Table 1B. The alert levels (ALs) and Aquifer Quality Limits (AQLs) in these wells shall be the same as those set for POC well CON-E3.

2.5.3.3 Alert Levels (ALs) for POC Wells

The ALs for POC well CON E-3 and CR-1 and Alert Levels wells BF-2 and BF-3 have been calculated for parameters that have an established AWQS. AQLs have been calculated for CON E-3 and CR-1 for all required parameters that have an AWQS. The ALs and AQLs shall be established and calculated by the following formula or another valid statistical method submitted to GWS in writing and approved for this permit by the GWS:

$AL = x + ks$

Where x = the mean, s = standard deviation, and k = one-sided normal tolerance interval with a 95-percent confidence level (Lieberman, G.J. (1958) Tables for One-sided Statistical Tolerance Limits: Industrial Quality Control, Vol. XIV, No. 10). Values in the sample data set determined to be statistical outliers should be excluded from the data used in the AL calculation. The following criteria shall be met in establishing AQLs and ALs in the permit:

The AL shall be calculated for a parameter using the analyses from a minimum of 8 sample events. The permittee shall not use more than 12 sample rounds in the calculation of a parameter. Any data where the Practical Quantitation Level (PQL) exceeds 80 percent of the AWQS shall not be included in the AL calculation.

If a parameter is below the detection limit, the permittee shall report the value as “less than” the numeric value for the PQL or detection limit for the parameter, not just as “non-detect.” For those parameters, the permittee shall use a value of one-half the reported detection limit for the AL calculation.

If the analytical results from more than 50 percent of the samples for a specific parameter are non-detects, then the AL shall be set at 80 percent of the AWQS.

2.5.3.4 Aquifer Quality Limits for Point of Compliance Wells

For each of the monitored analytes for which a numeric AWQS has been adopted, the AQL shall be established as follows:

1) If the calculated AL is less than the AWQS, then the AQL shall be set equal to

the AWQS.

2) If the calculated AL is greater than the AWQS, then the AQL shall be set equal to the calculated AL value, and no AL shall be set for that constituent at the monitoring point.

2.5.3.5 Compliance Groundwater Monitoring for POC and AL Wells

Annual compliance groundwater monitoring in POC well CON E-3 and CR-1 shall be performed within the first calendar quarter of the year. The permittee shall analyze annual compliance groundwater samples from CON E-3 and CR-1 for all parameters listed in Section 4.2, Table 1C. Annual compliance monitoring for POC wells BK-1 and BK-2 shall be done in accordance with the Compliance Schedule in Section 3.0 and for all parameters listed in Section 4.2, Table 1C. Compliance groundwater monitoring in AL wells BF-2 and BF-3 shall be done on a quarterly schedule for the parameters listed in Section 4.2, Table 1D. Every 2 years (biennial) the permittee shall analyze well BF-2 and BF-3 for an expanded list of parameters listed in Section 4.2, Table 1E. The biennial event shall replace the regularly scheduled quarterly sampling event. The permittee should submit a written request to the Groundwater Section to modify, reduce, or delete a monitoring parameter in the compliance groundwater monitoring tables Section 4.2, Tables 1C through 1E in accordance with the following criteria:

1. The parameter in question has not been detected for at least two consecutive biennial, or four consecutive quarterly monitoring events in the well. The PQL reported by the laboratory shall be less than 80 percent of the established numeric AWQS, and shall not be greater than three times the laboratory method detection limit for that parameter.
2. The permittee shall submit a written report indicating the parameter(s) proposed for modification, accompanied by supporting data, including laboratory analytical reports and quality assurance/quality control data, to ADEQ, GWS/APPDWU for review.
3. Upon review, the GWS/ APPDWU shall determine if the modification(s) requested is justified and approved. The respective changes, if approved, shall require an amendment to the permit.

2.5.4 Surface Water Monitoring and Sampling Protocols

Not applicable

2.5.5 Methane Gas Monitoring for Solid Waste Landfill

Methane monitoring will be conducted annually at the Solid Waste Landfill. Methane concentrations will be measured annually as probed, recorded, and reported to ADEQ in the annual report. QA/QC procedures used to ensure the representative gas samples are measured shall also be recorded and reported to ADEQ in the annual report. The measurements shall be made using a portable, real-time gas-monitoring instrument. Monitoring shall be performed in accordance with currently accepted standards of professional practice.

Should the annual monitoring after three consecutive years indicate that methane gas concentrations are below 100 percent of the lower explosive limit (LEL) (equivalent of 5 percent methane) then BHP may petition that vapor monitoring be discontinued.

2.5.5.1 Gas Monitoring Protocols

All gas monitoring samples will be analyzed using a real-time gas monitor that is calibrated each day prior to use, according to the manufacturer's specifications. Each gas-collection well will be measured three times, approximately 3 inches below the wellhead, and each measurement shall be recorded on a permanent log sheet or book, Measurements will not be made on days of high wind or rain.

2.5.5.2 Gas Monitoring Well Replacement

In the event that one, or more, of the designated gas monitoring wells should become

unusable or inaccessible due to damage, or any other event, a replacement gas monitoring well shall be constructed and installed within 60 days upon approval by the GWS.

2.5.6 Analytical Methodology

All samples collected for compliance monitoring shall be analyzed using Arizona state approved methods. If no state approved method exists, then any appropriate EPA approved method shall be used. Regardless of the method used, the detection limits must be sufficient to determine compliance with the regulatory limits of the parameters specified in this permit. Analyses shall be performed by a laboratory licensed by the Arizona Department of Health Services, Office of Laboratory Licensure and Certification. For results to be considered valid, all analytical work shall meet quality control standards specified in the approved methods. A list of Arizona state certified laboratories can be obtained at the address below:

Arizona Department of Health Services
Office of Laboratory Licensure and Certification
250 North 17th Avenue
Phoenix, AZ 85007
Phone: (602) 364-0720

2.5.7 Installation and Maintenance of Monitoring Equipment

Gas monitoring wells have been installed west and south of the landfills about 700 to 750 feet apart, as approved by ADEQ in a letter dated November 21, 2008 (PRU08-481). The number of wells, locations and construction details of the gas monitoring wells was submitted to ADEQ, Solid Waste Plan Review Unit (SWPRU) on January 23, 2009 for review.

Monitoring equipment required by this permit shall be installed and maintained so that representative samples required by the permit can be collected. If new groundwater wells or new gas monitoring wells are determined to be necessary, the construction details shall be submitted to the ADEQ Groundwater Section or SWPRU for approval prior to installation and the permit shall be amended to include any new points.

Existing groundwater monitoring wells shall be maintained so that proper groundwater samples can be collected. If conditions occur such that proper groundwater samples cannot be obtained from an existing groundwater monitor well, the conditions shall be evaluated, and an assessment of need shall be submitted to ADEQ within 45 days.

2.6 Contingency Plan Requirements
[A.R.S. § 49-243(K)(3), (K)(7) and A.A.C. R18-9-A204 and R18-9-A205]

2.6.1 General Contingency Plan Requirements

At least one copy of the approved contingency and emergency response plan submitted in compliance with the Compliance Schedule, Section 3.0, shall be maintained at the location where day-to-day decisions regarding the operation of the facility are made. The permittee shall be aware of and follow the contingency and emergency plans.

Any AL that is exceeded or any violation of an AQL, discharge limit (DL), or other permit condition shall be reported to ADEQ following the reporting requirements in Section 2.7.3.

Some contingency actions involve verification sampling. Verification sampling shall consist of the first follow-up sample collected from a location that previously indicated a violation or the exceedance of an AL. Collection and analysis of the verification sample shall use the same protocols and test methods to analyze for the pollutant or pollutants that exceeded an AL or violated an AQL. The permittee is subject to enforcement action for the failure to comply with any contingency actions in this permit. Where verification sampling is specified in this permit, it is the option of the permittee to perform such sampling. If verification sampling is not conducted within the timeframe allotted,

ADEQ and the permittee shall presume the initial sampling result to be confirmed as if verification sampling has been conducted. The permittee is responsible for compliance with contingency plans relating to the exceedance of an AL or violation of a DL, AQL, or any other permit condition.

2.6.2 Exceeding of Alert Levels

2.6.2.1 Exceeding of Alert Levels Set for Operational Conditions

Not applicable

2.6.2.2 Exceeding of Alert Levels Set for Discharge Monitoring

Not applicable

2.6.2.3 Exceeding of Alert Levels in Groundwater Monitoring

2.6.2.3.1 Alert Levels for Indicator Parameters

Not applicable

2.6.2.3.2 Alert Levels for Pollutants with Numeric Aquifer Water Quality Standards

1. If an AL for a pollutant set in Section 4.2, Tables 1D or 1E has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms the AL being exceeded or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately initiate an investigation of the cause of the AL being exceeded, including inspection of all discharging units and all related pollution control devices, review of any operational and maintenance practices that might have resulted in an unexpected discharge, and hydrologic review of groundwater conditions including upgradient water quality.
3. The permittee shall initiate actions identified in the approved contingency plan referenced in Section 2.6 and specific contingency measures identified in Section 2.6.6 to resolve any problems identified by the investigation which may have led to an AL being exceeded. To implement any other corrective action the permittee shall obtain prior approval from ADEQ according to Section 2.6.6. Alternatively, the permittee may submit a technical demonstration, subject to written approval by the Groundwater Section, that although an AL is exceeded, pollutants are not reasonably expected to cause a violation of an AQL. The demonstration may propose a revised AL or monitoring frequency for approval in writing by the Groundwater Section.
4. Within 30 days after confirmation of an AL being exceeded, the permittee shall submit the laboratory results to the Water Quality Compliance Section along with a summary of the findings of the investigation, the cause of the AL being exceeded, and actions taken to resolve the problem.
5. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
6. The increased monitoring required as a result of ALs being exceeded may be reduced to regularly scheduled frequency, if the results of three sequential sampling events demonstrate that no parameters exceed the AL.
7. If the increased monitoring required as a result of an AL exceedance continues for more than six sequential sampling events, the permittee shall submit a second report documenting an investigation of the continued AL exceedance within 30 days of the receipt of laboratory results of the sixth sampling event.

2.6.2.3.3 Alert Levels to Protect Downgradient Users from Pollutants Without Numeric Aquifer Water Quality Standards

Not applicable

2.6.3 Discharge Limitations (DL) Violations

1. If a DL set in Section 4.2, Table 1F has been violated, the permittee shall immediately investigate to determine the cause of the violation. The investigation shall include the following:
   a. Inspection, testing, and assessment of the current condition of all treatment or pollutant discharge control systems that may have contributed to the violation;
   b. Review of recent process logs, reports, and other operational control information to identify

any unusual occurrences;

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the problem. The permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

2. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
3. The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.

2.6.3.1 Liner Failure, Containment Structure Failure, or Unexpected Loss of Fluid

In the event of liner failure, containment structure failure, or unexpected loss of fluid such that a Heap drain-down fluids or stormwater runoff is released to the surface or to the vadose zone, the permittee shall take the following actions:

1. As soon as practicable, cease all discharges as necessary to prevent any further releases to the environment.
2. Within 24 hours of discovery, notify ADEQ Water Quality Compliance Section, Enforcement Unit.
3. Within 5 days of discovery of a failure that resulted in a release to the subsurface, collect representative samples of the fluid remaining. Samples shall be analyzed for the parameters specified in Section 4.0, Table 4.8. Within 30 days of the incident, submit a copy of the analytical results to ADEQ Water Quality Compliance Section, Enforcement Unit.
4. Within 15 days of discovery, initiate an evaluation to determine the cause for the incident. Identify the circumstances that resulted in the failure and assess the condition of the surface impoundment and liner system. Implement corrective actions as necessary to resolve the problems identified in the evaluation. Initiate repairs to any failed liner, system, structure, or other component as needed to restore proper functioning of the surface impoundment. The permittee shall not resume discharging to the surface impoundment until repairs of any failed liner or structure are performed. Repair procedures, methods, and materials used to restore the system(s) to proper operating condition shall be described in the facility log/recordkeeping file and available for ADEQ review.
5. As soon as practicable, take remedial actions to prevent further releases to the subsurface and/or to perform repairs. Record in the facility log/recordkeeping file the amount of fluid removed, a description of the removal method, and other disposal arrangements. The facility log/recordkeeping file shall be maintained according to Section 2.7.2 (Operation Inspection / Log/Recordkeeping File).
6. Within 30 days of discovery of the incident, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and AL Status Reporting). Include a description of the actions performed in Subsections 1 through 5 listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
7. Within 60 days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident. If soil or groundwater is impacted such that it could cause or contribute to an exceedance of an AQL at the applicable point of compliance, submit to ADEQ, for approval, a corrective action plan to address such impacts, including identification of remedial actions and/or monitoring, and a schedule for completion of activities. At the direction of ADEQ, the permittee shall implement the approved plan.
8. Within 30 days of completion of corrective actions, submit to ADEQ, a written report as specified in section 2.6.6 (Corrective Actions). Upon review of the report, ADEQ may

amend the permit to require additional monitoring, increased frequency of monitoring, amendments to permit conditions, or other actions.

2.6.3.2 Unexpected Loss of Spent Ore from the Heap Leach Facility

If there is an unexpected loss of spent ore rock materials owing to a stability failure of the Heap Leach Facility, such that the spent ore rock materials are released to the vadose zone, beyond containment provided by the Heap liner and the perimeter berms, the permittee shall take the following actions:

1. Within 24 hours of discovery, notify ADEQ Water Quality Compliance Section, Enforcement Unit (WQCS/EU).
2. Within 5 business days of the discovery of a failure that resulted in a release to the surface or subsurface, implement temporary measures to contain released material and collect representative samples of the spent ore and associated runoff if present. Soil samples shall be analyzed for all metals for which a Soil Remediation Level is listed in the ADEQ Soil Remediation Rules (R18-7-200). Within 30 days of the incident, submit a copy of the analytical results to ADEQ, WQCS/EU. The permittee shall send a copy of the cover letter that summarizes the report to the GWS .
3. Within 15 days of discovery, initiate an evaluation to determine the cause for the incident. Identify the circumstances that resulted in the failure and assess the condition of the Heap Leach Facility and liner system Implement corrective actions as necessary to resolve the problems identified in the evaluation. Initiate repairs to any failed liner, system, structure, or other component as needed to restore proper functioning of the Heap Leach Facility. Repair procedures, methods and materials used to restore the system(s) to proper operating condition shall be described in the facility log/recordkeeping file and made available for ADEQ to review.
4. Within 30 days of discovery of the incident, submit a report to ADEQ as specified in Section 2.7.3 (Permit Violation and Alert Level Status Reporting). Include a description of the actions performed in (1) through (3) listed above. Upon review of the report, ADEQ may request additional monitoring or remedial actions.
5. Within 60 days of discovery, conduct an assessment of the impacts to the subsoil and/or groundwater resulting from the incident, including geophysical assessment of release to the subsurface. If soil or groundwater is impacted such that there is a reasonable probability that pollutants identified in the assessment, including identification of releases to the environment, remedial actions and/or monitoring, and a schedule for completion or activities. At the direction of ADEQ, the permittee shall implement the approved plan.
6. Within 30 days of completion of corrective actions, submit to ADEQ a written report as specified in Section 2.6.6 (Corrective Actions).

2.6.4 Aquifer Quality Limit Violation

1. If an AQL set in Section 4.2, Table 1C has been exceeded, the permittee may conduct verification sampling within 5 days of becoming aware of an AQL being exceeded. The permittee may use the results of another sample taken between the date of the last sampling event and the date of receiving the result as verification.
2. If verification sampling confirms that the AQL is violated for any parameter or if the permittee opts not to perform verification sampling, then the permittee shall increase the frequency of monitoring to monthly. In addition, the permittee shall immediately initiate an evaluation for the cause of the violation, including inspection of all discharging units and all related pollution control devices, and review of any operational and maintenance practices that might have resulted in unexpected discharge.

The permittee also shall submit a report according to Section 2.7.3, which includes a summary of the findings of the investigation, the cause of the violation, and actions taken to resolve the

problem. A verified exceedance of an AQL will be considered a violation unless the permittee demonstrates within 30 days that the exceedance was not caused or contributed to by pollutants discharged from the facility. Unless the permittee has demonstrated that the exceedance was not caused or contributed to by pollutants discharged from the facility, the permittee shall consider and ADEQ may require corrective action that may include control of the source of discharge, cleanup of affected soil, surface water or groundwater, and mitigation of the impact of pollutants on existing uses of the aquifer. Corrective actions shall either be specifically identified in this permit, included in an ADEQ approved contingency plan, or separately approved according to Section 2.6.6.

3. Upon review of the submitted report, the Department may amend the permit to require additional monitoring, increased frequency of monitoring, or other actions.
4. The permittee shall notify any downstream or downgradient users who may be directly affected by the discharge.
5. The permittee shall continue monitoring at the increased frequency until the contaminants are below the AQL and AL for 3 months.

2.6.5 Emergency Response and Contingency Requirements for Unauthorized Discharges pursuant to A.R.S. §49-201(12) and pursuant to A.R.S. § 49-241

2.6.5.1 Duty to Respond

The permittee shall act immediately to correct any condition resulting from a discharge pursuant to A.R.S. § 49-201(12), if that condition could pose an imminent and substantial endangerment to public health or the environment.

2.6.5.2 Discharge of Hazardous Substances or Toxic Pollutants

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of suspected hazardous substances (A.R.S. § 49-201(19)) or toxic pollutants (A.R.S. § 49-243(I)) on the facility site, the permittee shall promptly isolate the area and attempt to identify the discharged material. The permittee shall record information, including name, nature of exposure and follow-up medical treatment, if necessary, on persons who may have been exposed during the incident. The permittee shall notify the ADEQ Water Quality Compliance Section at (602) 771-2209 within 24 hours upon discovering the discharge of hazardous material which: a) has the potential to cause an AWQS or AQL to be exceeded; or b) could pose an endangerment to public health or the environment.

2.6.5.3 Discharge of Non-hazardous Materials

In the event of any unauthorized discharge pursuant to A.R.S. § 49-201(12) of non-hazardous materials from the facility, the permittee shall promptly attempt to cease the discharge and isolate the discharged material. Discharged material shall be removed and the site cleaned up as soon as possible. The permittee shall notify the ADEQ Water Quality Compliance Section at (602) 771-2209 within 24 hours upon discovering the discharge of non-hazardous material which: a) has the potential to cause an AQL to be exceeded at the applicable POC; or b) could pose an endangerment to public health or the environment.

2.6.5.4 Reporting Requirements

The permittee shall submit a written report for any unauthorized discharges reported under Sections 2.6.5.2 and 2.6.5.3 to ADEQ Water Quality Compliance Section at (602) 771-2209 within 30 days of the discharge or as required by subsequent ADEQ action. The report shall summarize the event, including any human exposure, and facility response activities and include all information specified in Section 2.7.3. The permittee shall send a copy of the cover letter that summarizes the report to the GWS. If a notice is issued by ADEQ subsequent to the discharge notification, any additional information requested in the notice shall also be submitted within the time frame specified in that notice. Upon review of the submitted report, ADEQ may require additional monitoring or corrective actions.

2.6.6 Corrective Actions

Specific contingency measures identified in Section 2.6 and actions identified in the approved contingency plan submitted in response to the Engineering Compliance Schedule, Section 3.0, Table 1A have already been approved by ADEQ and do not require written approval to implement.

With the exception of emergency response actions taken under Section 2.6.5, the permittee shall obtain written approval from the Groundwater Section prior to implementing a corrective action to accomplish any of the following goals in response to exceeding an AL or violation of an AQL, DL, or other permit condition:

1. Control of the source of an unauthorized discharge;
2. Soil cleanup;
3. Cleanup of affected surface waters;
4. Cleanup of affected parts of the aquifer; and/or
5. Mitigation to limit the impact of pollutants on existing uses of the aquifer.

Within 30 days of completion of any corrective action, the operator shall submit to the ADEQ Water Quality Compliance Section, a written report describing the causes, impacts, and actions taken to resolve the problem.

2.7 Reporting and Recordkeeping Requirements [A.R.S. § 49-243(K)(2) and A.A.C. R18-9-A206(B) and R18-9-A207]

2.7.1 Self-monitoring Report Form

1. The permittee shall complete the SMRFs provided by ADEQ, and submit them to the Water Quality Compliance Section, Data Unit.
2. The permittee shall complete the SMRF to the extent that the information reported may be entered on the form. If no information is required during a quarter, the permittee shall enter "not required" on the SMRF and submit the report to ADEQ. The permittee shall use the format devised by ADEQ.
3. The tables contained in Sections 4.0 list the parameters to be monitored and the frequency for reporting results for groundwater compliance monitoring. Analytical methods shall be recorded on the SMRFs.
4. In addition to the SMRF, the information contained in A.A.C. R18-9-A206(B)(1) shall be included for exceeding an AL or violation of an AQL, DL, or any other permit condition being reported in the current reporting period.

2.7.2 Operation Inspection / Log Book Recordkeeping

A signed copy of this permit shall be maintained at all times at the location where day-to-day decisions regarding the operation of the facility are made. A log book (paper copies, forms or electronic data) of the inspections and measurements required by this permit shall be maintained at the location where day-to-day decisions are made regarding the operation of the facility. The log book shall be retained for 10 years from the date of each inspection, and upon request, the permit and the log book shall be made immediately available for review by ADEQ personnel. The information in the log book shall include, but not be limited to, the following information as applicable:

1. Name of inspector;
2. Date and shift inspection was conducted;
3. Condition of applicable facility components;
4. Any damage or malfunction, and the date and time any repairs were performed;
5. Documentation of sampling date and time;
6. Any other information required by this permit to be entered in the log book, and
7. Monitoring records for each measurement shall comply with R18-9-A206(B)(2).

2.7.3 Permit Violation and Alert Level Status Reporting

1. The permittee shall notify the Water Quality Compliance Section in writing within 5 days (except

as provided in Section 2.6.5) of becoming aware of a violation of any permit condition, discharge limitation or of an Alert Level being exceeded.

2. The permittee shall submit a written report to the Water Quality Compliance Section within 30 days of becoming aware of the violation of any permit condition or discharge limitation. The report shall document all of the following:
   a. Identification and description of the permit condition for which there has been a violation and a description of its cause.
   b. The period of violation including exact date(s) and time(s), if known, and the anticipated time period during which the violation is expected to continue.
   c. Any corrective action taken or planned to mitigate the effects of the violation, or to eliminate or prevent a recurrence of the violation.
   d. Any monitoring activity or other information which indicates that any pollutants would be reasonably expected to cause a violation of an AWQS.
   e. Proposed changes to the monitoring which include changes in constituents or increased frequency of monitoring.
   f. Description of any malfunction or failure of pollution control devices or other equipment or processes.

2.7.4 Operational, Other or Miscellaneous Reporting

The permittee shall, upon completion of the biennial sampling described in Section 4.2 Table 1E, submit a monitoring summary report to the ADEQ WQCS–DU and to the ADEQ GWS. This report shall be due at the same time as the SMRF form for the biennial sampling event. The report shall be submitted no later than 30 business days following the end of the first quarter. The report shall include, but not be limited to the following:

1. A description of any deviations from standard sampling protocols during the reporting period.
2. A summary of all exceedances of ALs or AQLs that occurred during the reporting period.
3. Graphical time versus concentration plots of field pH, sulfate, total dissolved solids, and any parameter that exceeded an applicable AL or AQL in the past 8 quarters at each POC well, and tabulated sampling data for all wells required to be sampled by this permit during the last 8 quarters.
4. An updated table of all monitor wells and piezometers in the Discharge Impact Area including, but not limited to, location of well, depth of well, and current depth to water.
5. A summary of any groundwater monitor wells replaced in the reporting period including, but not limited to, location of well, depth of well, depth to water, and screened interval.
6. The water level data shall be used to construct a potentiometric surface map and two vertical profiles. The vertical profiles shall be at longitudinal and transverse orientations with respect to the direction of groundwater flow. The Longitudinal Section shall show water level from CR-2, CR-3, No. 5 Shaft, BF-1, BF-2, BF-3, the future Pit Lake (if present), CDH-111, and Santa Maria. The Transverse Section shows water level from CR-1, the future Pit Lake (if present), and CDH-112.

The permittee shall, upon completion of the closure construction activities, submit written verification to ADEQ GWS of proper Heap liner sub-grade preparation, quality control, and inspection; and proper liner integrity, installation, quality control and inspection; and proper Diversion Channel and Pipeline construction, quality control and inspection, as required by this permit. This report shall be signed by a Professional Engineer.

Copies of all as-built reports, signed warranties for liner materials, connections, and workmanship for new Heap Leach pad areas and other new construction shall be submitted to ADEQ GWS according to the compliance schedule in Section 3.0, Table 1A.

2.7.5 Reporting Location

All SMRFs shall be submitted to:

Arizona Department of Environmental Quality
Water Quality Compliance Section, Data Unit
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4513

All documents required by this permit to be submitted to the Water Quality Compliance Section shall be directed to:

Arizona Department of Environmental Quality
Water Quality Compliance Section
Mail Code: 5415B-1
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4614

All documents required by this permit to be submitted to the Groundwater Section shall be directed to:

Arizona Department of Environmental Quality
Groundwater Section
Mail Code: 5415B-3
1110 W. Washington Street
Phoenix, AZ 85007
Phone (602) 771-4428

2.7.6 Reporting Deadline

The following table lists the quarterly report due dates:

Monitoring conducted during quarter:	Quarterly Report due by:
January-March	April 30
April-June	July 30
July-September	October 30
October-December	January 30

2.7.7 Changes to Facility Information in Section 1.0

The Groundwater Section and Water Quality Compliance Section shall be notified within 10 days of any change of facility information including Facility Name, Permittee Name, Mailing or Street Address, Facility Contact Person or Emergency Telephone Number.

2.8 Temporary Cessation [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A209(A)]

Not applicable

2.9 Closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(B)]

The permittee gave written notice to ADEQ of the permanent closure of the facility addressed in this permit in January 15, 2002.

2.9.1 Closure Plan

Following notification of closure, BHP Copper submitted for approval to the GWS, a detailed Closure Plan (Closure Plan Demonstration and Compliance Schedule) to meet the requirements of A.R.S. § 49-

252 and A.A.C. R18-9-A209(B)(1)(a). The Closure Plan Demonstration addressed site cleanup activities, facility demolition, materials remaining on site after closure, and the removal and disposal of hazardous waste materials. The Closure Plan Demonstration does not achieve clean closure as post-closure monitoring is required and because some of the facilities have not ceased discharge.

Individual BADCT closure and design plans for the waste rock dumps, Heap Leach Facility, and Diversion Structure were submitted to ADEQ GWS (BHP Copper San Manuel Mine Site Design Report No. 1). The closure plans for facilities subject to BADCT methods were also addressed in Design Report No. 1. BHP submitted the BADCT closure design plans for the SX-EW Area, No. 1 Stockpile, and the perimeter areas in *BHP Copper San Manuel Mine Site Design Report No. 2*. All non-discharging and discharging facilities were closed between 2003 and May 2006 except for the In-Situ Mine and the future Pit Lake. A closure plan incorporating BADCT methods to close the Pit Lake and In-Situ Mine shall be submitted for approval to ADEQ GWS according to the Engineering Compliance Schedule presented in Section 3.0, Table 1A.

The permittee has submitted a report regarding a numerical groundwater flow model (*Appendix E – Numerical Groundwater Flow Model* included as part of the *General Information: Area-Wide Application for Closure of the San Manuel Mine Site, BHP Copper San Manuel Operations, Pinal County, Arizona*, dated September 15, 2003) to ADEQ as part of the closure application. The report describes the model including the purpose of the model, a conceptual hydrogeologic model of the mine area, a general description of the model code used and the reason for selection of the code, the model design and criteria included in the design, the model calibration, a sensitivity analysis of the model parameters, and the model predictions.

2.9.2 Closure Completion

Upon completion of closure activities, the permittee shall give written notice to the Groundwater Section indicating that the approved Closure Plan has been implemented fully and providing supporting documentation to demonstrate that clean closure has been achieved (soil sample results, verification sampling results, groundwater data, as applicable). If clean closure has been achieved, ADEQ shall issue a letter of approval to the permittee at that time. If any of the following conditions apply, the permittee shall follow the terms of post-closure stated in this permit:

1. Clean closure cannot be achieved at the time of closure notification or within one year thereafter under a diligent schedule of closure actions;
2. Further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance;
3. Continued action is required to verify that the closure design has eliminated discharge to the extent intended;
4. Remedial or mitigative measures are necessary to achieve compliance with Title 49, Ch. 2;
5. Further action is necessary to meet property use restrictions.

BHP shall follow the terms of post-closure as stated in this permit. More details regarding the closure plan referenced in Section 5.0 are on file at ADEQ. The Closure Plan for the Mine did not meet clean closure at the time of closure notification, and further action is necessary to keep the facility in compliance with aquifer water quality standards at the applicable point of compliance. As specified in Section 3.0, Table 1A, a Mine Site Facility Closeout Report was submitted to ADEQ. This report documented the demolition activities and handling of hazardous materials. It provided a final report on the materials remaining at the Mine, the types of hazardous materials removed from the Mine, and the fate of those hazardous materials. The report provided a summary of soil sampling and remediation results.

As-built reports documenting liner installation, re-grading earthwork, channel construction, quality control, and inspection records as described in Section 3.0, Table 1A were submitted to ADEQ following the completion of closure of the waste rock dumps, Heap Leach Facility, Diversion Structure, and the No. 1 Stockpile. Construction plans and as-built reports shall be submitted to

ADEQ for any new construction related to the closure of the In-situ Mine and future Pit Lake.

2.10 Post-closure [A.R.S. §§ 49-243(K)(6), 49-252 and A.A.C. R18-9-A209(C)]

Post-closure requirements shall be established based on a review of facility closure actions and will be subject to review and approval by the Groundwater Section.

In the event clean closure cannot be achieved pursuant to A.R.S. § 49-252, the permittee shall submit for approval to the Groundwater Section a Post-closure Plan that addresses post-closure maintenance and monitoring actions at the facility. The Post-closure Plan shall meet all requirements of A.R.S. §§ 49-201(30) and 49-252 and A.A.C. R18-9-A209(C). Upon approval of the Post-closure Plan, this permit shall be amended or a new permit shall be issued to incorporate all post-closure controls and monitoring activities of the Post-closure Plan.

2.10.1 Post-closure Plan

A Post-closure Monitoring and Contingency Plan shall be provided as per the compliance schedule presented in Section 3.0, Table 1A. The permittee shall submit to ADEQ, GWS for approval a post-closure monitoring and maintenance plan which eliminates, to the greatest extent practicable, any reasonable probability of further discharge from the facility and of exceeding AWQS at the applicable POCs. The plan shall describe the following:

1. The duration of post-closure care;
2. The monitoring procedures to be implemented by the permittee, including monitoring frequency, type, and location;
3. A description of the operating and maintenance procedures to be implemented for aquifer quality protection devices, such as liners, treatment systems, pump-back systems, and monitoring wells;
4. A schedule and description of physical inspections to be conducted at the facility following closure;
5. An estimate of the cost of post-closure maintenance and monitoring; and
6. A description of limitations on future land or water uses, or both, at the facility site as a result of facility operations.

The permittee shall implement the Post-closure Plan upon approval by the Department.

2.10.2 Post-Closure Completion

The permittee shall notify ADEQ, GWS, in writing when the post-closure activities have been completed.

3.0 COMPLIANCE SCHEDULE [A.R.S. § 49-243(K)(5) and A.A.C. R18-9-A208]

For each compliance schedule item listed below, the permittee shall submit the required information, including a cover letter that lists the compliance schedule items, to the Groundwater Section. A copy of the cover letter must also be submitted to the Water Quality Compliance Section.

The permittee shall submit an annual report to ADEQ, GWS at 12 months, 24 months, etc. after effective date of APP No. P-100421, as required by A.A.C. R18-9-A208(A)(2).

TABLE 1A COMPLIANCE SCHEDULE - ENGINEERING

COMPLIANCE PLAN SUBMITTAL		
GENERAL CLOSURE PLAN AND COST ESTIMATE FOR THE PIT LAKE AND IN-SITU MINE FACILITIES	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as outlined below. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: 1. A list of alternative BADCT options with a detailed description of each method, a list of materials involved, and associated costs of each option. 2. Based on the options analyses, select the preferred BADCT closure method that is cost effective, will attenuate and/or remove pollutants, and will achieve compliance with AWQS at the existing and proposed points of compliance listed in Section 4.2, Table 1C. 3. The plan shall manage mine water to minimize the potential for future degradation of the aquifer. 4. Develop monitoring and inspection methodology and frequency of monitoring and inspection. 5. List estimated capital and operating costs for the selected BADCT option for long-term operation and maintenance under the proposed plan.	Six months after permit issuance **Submitted June 30, 2006**
ANNUAL MONITORING REPORT FOR PIT LAKE AND IN-SITU MINE FACILITIES	Submit an annual report to ADEQ, GWS, describing the performance of the work associated with operation and maintenance of the selected option, the extent of groundwater recovery within the open pit, the quality of groundwater in the open pit and underground mine, the costs of maintenance and operation during the period, any modifications made or proposed to the approved plan, and a demonstration of continued compliance with AWQS at the POCs.	Submit annually, by June 30th each year

TABLE 1A COMPLIANCE SCHEDULE - ENGINEERING

COMPLIANCE PLAN SUBMITTAL		
CONTINGENCY PLAN	BHP shall submit to ADEQ, GWS, three copies of a work plan as outlined below for approval. Upon approval, BHP shall prepare the referenced report, and submit three copies of each report to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - Update post-closure monitoring methodology, reporting schedule, and contingency plans. - Develop site-wide monitoring plan to demonstrate on-going compliance with AWQS at the POC. - Upon approval of the work plan, implement the post-closure monitoring program and the long-term water management plan.	Nine months after permit issuance **Submitted May 4, 2007**
AS-BUILT REPORTS FOR THE CLOSURE OF THE RAFFINATE AND PLANT FEED PONDS IN THE SX-EW AREA	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as outlined below. Following work plan approval, BHP shall prepare the referenced report, including capital and operating cost estimates, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - A brief summary of BADCT options analyses, pollutant control/management options, erosion controls, soil cover at barrow sites and post-closure discharge characterization approaches. - As-built construction reports and maps with final topography on the closure and regarding of the Raffinate Pond (C-265) and the Plant Feed Pond (C-264). - Construction QA/QC reports - Results of characterization sampling and testing of pond sludges and ground below the liners - Installation and quality control inspection records. - Documentation or the earthwork including field changes to designs originally submitted to ADEQ GWS in Design Report No. 2. - Describe minimization of long-term maintenance, and the loading/ infiltration from stormwater.	Six months after permit issuance **Submitted September 15, 2006**

TABLE 1A COMPLIANCE SCHEDULE - ENGINEERING

COMPLIANCE PLAN SUBMITTAL		
AS-BUILT REPORTS FOR THE CLOSURE OF THE HEAP LEACH FACILITY	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as outlined below. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - A brief summary of the Heap Leach Facility history. - A brief summary of material characterization, BADCT options analyses, and selected closure design. - As-built construction QA/QC reports, plans, and maps with final topography, materials list with quantities excavated or installed (liner, pipe, rip-rap, concrete, etc.) for the Heap Leach Facility and Diversion Structure (Diversion Pipeline and Channel). - Document final earthwork, re-grading, cover, and new construction performed for closure. Document field changes to designs originally submitted to ADEQ GWS.	Seven months after permit issuance **Submitted July 14, 2006**
AS-BUILT REPORTS FOR THE CLOSURE OF THE NO. 1 STOCKPILE	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as outlined below. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - A brief summary of the No. 1 Stockpile history. - A brief summary of material characterization, BADCT options analyses, and selected closure design. - As-built construction QA/QC reports, plans, and maps with final topography, materials list with quantities excavated or installed (liner, pipe, rip-rap, concrete, etc.) for the Heap Leach Facility and Diversion Structure (Diversion Pipeline and Channel). - Document final earthwork, re-grading, cover, and new construction performed for closure. Document field changes to designs originally submitted.	Eight months after permit issuance **Submitted October 31, 2006**

TABLE 1A COMPLIANCE SCHEDULE - ENGINEERING

COMPLIANCE PLAN SUBMITTAL		
DESIGN REPORT NO. 3	BHP shall submit to ADEQ, GWS, three copies of a work plan pertaining to the work as referenced. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three copies to ADEQ, GWS. The contents shall include items, such as but not be limited to, the following: - As follow-up to the BADCT selection work under the *General Closure Plan and Cost Estimate for the Pit Lake and In-Situ Mine Facilities* in this Compliance Schedule, provide additional detail representing the selected design for construction. Include plans, reports, and maps for the selected closure BADCT, including analysis of cost vs. discharge reduction for comparison of various DCTs considered. - For the selected BADCT option, prepare conceptual engineering design and construction plans with management protocols for long-term water management of the Pit Lake, if needed, based on the outcome of the *General Closure Plan and Cost Estimate* referenced above in the Compliance Schedule.. - The "as-built" report for this work shall be submitted to ADEQ, GWS within 3 months following completion of the construction work referenced in *Design Report No. 3*.	Design Report No. 3 shall be submitted 60 days prior to work construction.
MINE SITE FACILITY CLOSEOUT REPORT	BHP shall submit to ADEQ, GWS, three (3) copies of a work plan pertaining to the work as referenced. Following work plan approval, BHP shall prepare the referenced report, including capital and operating costs, and submit three (3) copies to ADEQ, GWS. The contents shall demonstrate the extent of BHP compliance with A.A.C. R18-9-A209B, dated November 12, 2005. The demonstrations shall include, but not be limited to, the following: - A compilation of materials removed from the mine site and those stored on site. - The fate of these materials. - Documentation of facility demolition and material disposal, and the handling of hazardous materials. - Provide analytical results of soil sampling and remediation. Include photographs, daily reports of demolition activities, shipping manifests, asbestos hazard assessments, and the analytical results of soil samples.	Twelve (12) months after permit issuance. **Submitted July 16, 2007**

TABLE 1A COMPLIANCE SCHEDULE – HYDROLOGY

COMPLIANCE PLAN SUBMITTAL	DESCRIPTION GENERAL CLOSURE OBJECTIVE	SUBMITTAL DATE
POINT OF COMPLIANCE (POC) WELLS		
Installation of POC Wells BK-1 and BK-2	POC wells BK-1 and BK-2 shall be installed when one of the following conditions is met: 1. The water level in the mine reaches an elevation of 1,865 feet amsl. 2. An upward trending hydraulic pressure is observed in transducer well BF-1. 3. An AL is exceeded in either BF-2 or BF-3 for three consecutive quarterly sampling events. 4. No later than January 1, 2012. Changes to this approved plan shall be reviewed and approved by ADEQ according to the following guidelines: ▪ Each well shall be installed in accordance with ADWR requirements; ▪ The well casing shall have an OD of no less than 4 inches. ▪ Each well shall be screened within the uppermost aquifer. ▪ Well screen shall be no longer than 100 feet in length. The logs shall include the ADWR well registration number and the "as-built" cadastral and latitude and longitude coordinates for the well.	Per requirement of Section 2.4 or by January 1, 2012
Compliance Groundwater Monitoring in POC BK-1 and BK-2	Conduct annual groundwater monitoring in accordance with the schedule in Section 4.2, Table 1C. All annual samples shall be collected within the first calendar quarter of each year. Beginning with the first calendar quarter following well installation, and thereafter, annually during the first calendar quarter of each year. Annual compliance groundwater monitoring shall monitor for all parameters listed in Section 4.2, Table 1C to verify compliance of AWQS at the designated POC. Following completion of each annual event the permittee shall submit copies of SMRFs for each well to ADEQ WQCS-DU according to the schedule in Section 2.13.5.	Submit an annual groundwater monitoring report to the GWS by May 1st of each year.

TABLE 1A COMPLIANCE SCHEDULE – HYDROLOGY

COMPLIANCE PLAN SUBMITTAL	DESCRIPTION GENERAL CLOSURE OBJECTIVE	SUBMITTAL DATE
DRAINDOWN FROM HEAP LEACH FACILITY		
Monitoring of Draindown Water Quality from the Heap Leach Facility.	The permittee shall submit an annual report to GWS containing the laboratory analytical results from the sample of draindown water from the Heap Leach Facility. The sample shall be collected from sampling weir in the Diversion Pipeline Monitoring Point (near the inlet to the Diversion Pipeline). The sample shall be analyzed for the parameters listed in Section 4.2, Table 1F.	Within 12 months from the effective date of APP No. P-100421, and every 12 months thereafter.
POINT OF COMPLIANCE (POC) WELLS		
Ambient Water Quality Monitoring for POC Well CR-1.	The first monthly ambient monitoring sample taken in POC well CR-1 was collected in April 2005. Each sample round shall be analyzed for all parameters listed in Section 4.2, Table 1B report containing the laboratory results from the ambient sampling shall be submitted quarterly to GWS in accordance with the schedule in Section 2.7.6.	The 8 rounds of ambient monitoring shall be completed by September 1, 2006. **Submitted August 18, 2006**
No. 5 SHAFT AND PIT LAKE		
Monitoring of Water Level Elevations and Water Quality in the No. 5 Shaft and in the Pit Lake (if a pit lake has formed).	The permittee shall submit an annual report to GWS that includes the elevation of the water level in the No. 5 Shaft and the elevation of the Pit Lake, if formed. The report shall include a graph showing the current water level elevation in relation to the past water level measurements and a comparison to the levels predicted by the 2003 numerical flow model or a revised model. In addition, the permittee shall collect a sample of the water in the No. 5 Shaft and in the Pit Lake, if a pit lake is formed, and analyze the sample for the parameters listed in Section 4.2, Table 1F. The laboratory analytical results from the water sample(s) shall be included in the annual report.	Within 12 months from the effective date of APP No. P-100421, and every 12 months thereafter.

4.0 TABLES OF MONITORING REQUIREMENTS

4.1 PRE-OPERATIONAL MONITORING (or CONSTRUCTION REQUIREMENTS)

TABLE 1A Facilities List
TABLE 1B Facilities Subject to BADCT Requirement

4.2 COMPLIANCE (or OPERATIONAL) MONITORING

TABLE !A Required Inspections and Operational Monitoring
TABLE 1B Table of Parameters for Ambient Monitoring for Point of Compliance Well CR-1
TABLE 1C Annual Compliance Groundwater Monitoring Requirements for Points of Compliance
TABLE 1D Quarterly Groundwater Monitoring Requirements for Alert Level Wells
TABLE 1E Biennial Groundwater Monitoring Requirements for Alert Level Wells
TABLE 1F Process Solution and Mine Water Compliance Monitoring Requirements

4.3 CONTINGENCY MONITORING

Table 1A Facilities List

ADEQ FACILITY NO.	BHP FACILITY NO.	DISCHARGE FACILITY	LATITUDE	LONGITUDE
1	D-210A	No. 1 Stockpile (D-210A)	32°41’42” N	110°40’05” W
2	D-210B	No. 1 Satellite Stockpile (D-210B)	32°41’42” N	110°40’05” W
3	D-211A	No. 1/No. 4 Shaft Waste Rock Dump (D-211A)	32°41’47” N	110°41’20” W
4	D-211B	Ridgeline Waste Rock Dump (D-211B)	32°41’34” N	110°41’33” W
5	D-251A	In-Situ Mine (D-251A)	32°41’35” N	110°40’48” W
6	D-251B	Pit Lake (Future) (D-251B)	32°41’35” N	110°40’48” W
7	D-262	Heap Leach Facility (D-262)	32°42’05” N	110°40’40” W
8	C-263	Heap PLS Pond (C-263)	32°42’05” N	110°40’40” W
9	D-267A	No. 3 Shaft Development Dump (D-267A)	32°41’05” N	110°41’31” W
10	D-267B	Sulfide Ore Stockpile (D-267B)	32°41’22” N	110°41’30” W
11	D-267C	Red Hill Waste Rock Dump (D-267C)	32°41’22” N	110°41’30” W
12	D-268	Main Gate Parking Lot Dump (D-268)	32°40’54” N	110°41’48” W
13	C-264	Plant Feed Pond	32°42’10” N	110°41’15” W
14	C-265	Raffinate Pond	32°42’11” N	110°41’00” W
15	C-8A	Upper Hamilton Pond	32°42’56” N	110°41’25” W
16	C-8B	Middle Hamilton Pond	32°42’56” N	110°41’25” W
17	C-8C	Lower Hamilton Pond	32°42’56” N	110°41’25” W
18	C-46	Dirkes Dike	32°41’48” N	110°41’48” W
19	C-45	Julian’s Catchment	32°41’20” N	110°41’45” W
20	C-200	Bunkhouse Wash	32°41’50” N	110°41’00” W
21	NA	Wash Pads	NA	NA
22	C-97B	Oxide Truck Shop Wash Pad	32°41’58” N	110°41’19” W
23	C-214	Diesel Truckload Station	32°41’50” N	110°41’12” W
24	C-252	No. 1 Shaft (Temporary Heap Drain-down	32°41’46” N	110°41’20” W
25	E-19	Wood Landfill	32°41’08” N	110°41’08” W
26	E-39	Solid Waste Landfill	32°41’07” N	110°41’20” W

Notes: Locations are given as the centroid of the existing facilities.
NA = BHP number is unavailable.

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
1	D-210A	No. 1 Stockpile	32º41'42.4" N 110º40'05.0" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Remove sulfide material on side berms and consolidate to No. 1/No. 4 Waste Rock Dump or No. 3 Shaft Development Dump; - Re-grade side slopes to 3H:1V with all stormwater directed to erosion control structures; - Re-vegetate and provide erosion control.
2	D-210B	No. 1 Satellite Stockpile	32º41'42.4" N 110º40'05.0" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Increase No. 1 Satellite Stockpile footprint to accommodate 3H:1V configuration; - Re-grade side slopes to 3H:1V with all stormwater directed to stormwater structures or to the Open Pit; - Re-vegetate and provide erosion control.
3	D-211A	No. 1/No. 4 Shaft Waste Rock Dump	32º41'47.7" N 110º41'20.4" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Expand footprint of existing dump with sulfide waste rock from Ridgeline Waste Rock Dump; - Place a soil cover of 2 feet over residual sulfide materials; - No soil cover was placed over the bedrock areas; - Re-grade to achieve approximate 3H:1V slope on exterior side-slopes to promote efficient runoff and manage long-term erosion

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Re-vegetate slopes and provide erosion control.
4	D-211B	Ridgeline Waste Rock Dump	32º41'34.4" N 110º41'33.8" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Selectively remove sulfidic materials and relocate it to the No. 1/No. 4 Shaft Waste Rock Dump and No. 3 Shaft Development Dump, both within the Open Pit catchment area; - Re-grade remaining dump materials to provide an approximate 3H:1V slope; - Place a soil cover of 2 feet over the residual sulfide material; and - Re-vegetate slopes and provide erosion control.
9	D-267A	No. 3 Shaft Development Dump	32º41'05.1" N 110º41'31.3" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Expand footprint of existing dump with waste rock from the Ridgeline Waste Rock Dump and other waste rock dump areas; -Re-grade to achieve approximate 3H:1V slopes for final dump configuration to stabilize slopes; - Place a soil cover of 2 feet over residual sulfide materials; and - Re-vegetate slopes and provide erosion control.
10	D-267B	Sulfide Ore Stockpile	32º41'22.2" N 110º41'30.6" W	Facility was removed	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Remove the Sulfide Ore Stockpile material and relocate materials to the No. 3 Shaft Development Dump.

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
11	D-267C	Red Hill Waste Rock Dump	32º41'22.2" N 110º41'30.6" W	Facility to remain	The BADCT for closure of this facility shall include the following : - Characterization sampling conducted. - Re-contour and re-vegetate the top portion of the Red Hill Waste Rock Dump after removal of the Sulfide Ore Stockpile; and - Provide surface water drainage on the top portion of the Red Hill Waste Rock Dump.
12	D-268	Main Gate Parking Lot Dump	32º40'54.6" N 110º41'48.8" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Re-grade side-slopes to a slope of 3H:1V; - Place soil cover of 2 feet over dump materials; and - Re-vegetate slopes and provide erosion control.
7	D-262	Heap Leach Facility	32º42'05.9" N 110º40'40.0" W	Facility to remain	The BADCT for closure of this facility shall include the following: - Characterization sampling conducted. - Maintain existing surface water run-on controls; - Extend existing HDPE liner with 60 mil HDPE north and south liner extensions including 1 foot of low permeability underliner and 1.5 feet of non-calcareous crushed rock overliner materials. - Separate storm water and drain-down solutions via a Heap Leach Facility perimeter channel for storm water and a toe drain system and Diversion Pipeline (part of Diversion Structure) for heap drain-down solutions; - Re-grade and re-contour heap leach materials to achieve approximate 3H:1V side slopes; - Place soil cover of 2 feet, and - Re-vegetate and provide erosion control.

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					The Diversion Structure consists of a Diversion Channel and a Diversion Pipeline and is new construction as part of the closure of the Heap Leach Facility. The construction of the Diversion Structure includes the following: - Excavate earthen Diversion Channel to open pit catchment area from the discharge end of the Heap Leach Facility; - Install a 24-inch diameter HDPE discharge pipeline (Diversion Pipeline) within the invert of the Diversion Channel to carry drain-down solutions to the escarpment area along the edge of the open pit. The pipeline discharge point is in San Manuel Formation which offers basic pH and acid-neutralization; - Place fill material over the Diversion Pipeline and armor the Diversion Channel for erosion control; - Incorporate management of spent process solution with the long-term, site-wide water management strategy and the closure plan for the In-Situ Mine and future Pit Lake.
5	D-251A	In-Situ Mine	32º41’ 35” N 110º40’ 48” W	Facility to remain	BADCT shall be determined in closure plan.
6	D-251B	(Future) Pit Lake	32º41’ 35” N 110º40’ 48” W	Facility to remain	BADCT shall be determined in closure plan.
8	C-263	Heap PLS Pond	32º42’05.9” N 110º40’40.0” W	Facility was removed	The BADCT for the closure of this lined facility shall include the following: - Characterization sampling conducted on residual materials on liner, - Remove free liquids from the pond (if present) through pumping and transfer to the heap leach surface;

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					- Salvage removable equipment; - Remove and dispose of solid residue on the synthetic liner; - Characterization sampling conducted on ground materials below the liner, - If contamination found under the liner, pull it back to accommodate excavation and disposal of contamination in the Heap Leach Facility, - Whether or not excavation of contamination is required from under the liner, the liner shall be folded into the base of the pond and buried' Backfill, including placement of low permeability capping material, shall be placed and graded to shed stormwater away from the site, - Re-vegetate and provide erosion control. - Incorporate remaining impoundment area into BADCT for Heap Leach Facility.
13	C-264	Plant Feed Pond	32º42'1" N 110º41'15" W	Facility was removed	- Remove and dispose of solid residue on the synthetic liner for these lined facilities; - Characterization sampling conducted on ground materials below the liner, - If contamination found under the liner, pull it back to accommodate excavation and disposal of contamination in the Heap Leach Facility, - After the residual soil conditions meet applicable remediation standards, the liner shall be placed back into the excavation or be removed for appropriate disposal elsewhere, and
14	C-265	Raffinate Pond	32º42'11" N 110º41'0" W	Facility was removed	
19	C-45	Julian's Catchment	32º41'20" N 110º41'45"W	Facility was removed	

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
					the excavation backfilled. Backfill, including placement of low permeability capping material, shall be placed and graded to shed stormwater away from the site, - Re-vegetate and provide erosion control.
15, 16, and 17	C-8A; C-8B; C-8C	Upper, Middle, and Lower Hamilton Ponds	32º42'56" N 110º41'25" W	Facilities were removed	The BADCT for the closure of these lined facilities shall include the following: - Characterization sampling conducted, -Assessment and corrective action, if required, of potential soil contamination; - Abandon (cut and cap) storm water drains and redirect former dust-suppression water in a diversion ditch into the subsidence area; - Backfill former ponds and grade them to drain surface water runoff; - Cap pond area with a low permeability cover; and - Incorporate area in BADCT closure for the No. 3 Shaft Development Dump.
18	C-46	Dirkes Dike	32º41'48" N 110º41'48" W	Facility was removed	The BADCT for the closure of this unlined facility shall include the following: - Characterization sampling conducted -Assessment and corrective action, if required, of potential soil contamination; - Backfill former ponds and grade them to drain surface water runoff; - Cap pond area with a low permeability cover; and - Re-vegetate

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
20	C-200	Bunkhouse Wash	32º41'49"N 110º41'00"W	Facility was removed	The BADCT for the closure of these unlined facilities shall include the following: - Characterization sampling conducted - Assessment and corrective action, if required, of potential soil contamination; and -Grading to drain surface runoff and minimize infiltration of precipitation. - Incorporate closure into BADCT for No. 1/No. 4 Shaft Waste Rock Area.
21	NA	Wash Pad	NA	Facility was removed	The BADCT for this facility shall include the following: - Remove above-grade pumps and piping; - Drain and clean wash water collection areas; - Dispose of recovered oil (if present) and sediment according to characterization results indicating appropriate disposal to include disposal at the Heap Leach Facility. - Demolish superstructures and leave foundations at or below existing ground surface; - Characterization sampling conducted to check potential contamination of the site, - Assess need for soil corrective action (oil and grease); - Penetrate concrete structures or elements that could accumulate water; - Cover foundation with suitable fill and grade slopes for drainage control; and - Re-vegetate area

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
22	C-97B	Oxide Truck Wash Pad	32º41'58"N 110º41'19"W	Facility was removed	The BADCT for this facility shall include the following: - Remove above-grade pumps and piping; - Drain and clean wash water collection areas; - Dispose of recovered oil (if present) and sediment according to characterization results indicating appropriate disposal to include disposal at the Heap Leach Facility. - Demolish superstructures and leave foundations at or below existing ground surface; - Characterization sampling conducted to check potential contamination of the site, -Assess need for soil corrective action (oil and grease); - Penetrate concrete structures or elements that could accumulate water; - Cover foundation with suitable fill and grade slopes for drainage control; and - Re-vegetate area
23	C-214	Diesel Truckload Station	32º41'50"N 110º41'12"W	Facility was removed	The BADCT for this facility shall include the following: - Demolish superstructures and foundations and assess removal of contaminated materials; - Characterization sampling - Assess need for soil corrective action, - Backfill and place a soil cover of 2 feet over the facility site, and grade slopes for drainage control; 2-foot cover - Re-vegetate area

Table 1B Facilities Subject to BADCT Requirements					
ADEQ FACILITY NO.	**BHP FACILITY NO.**	**FACILITY NAME**	**LATITUDE / LONGITUDE**	**POST-CLOSURE STATUS**	**BADCT REQUIREMENT**
24	C-252	No. 1 Shaft (Temporary Heap Drain-down)	32º41'46"N 110º41'20"W	No longer receiving drain-down	The BADCT for this facility shall include the following: - Disconnect and remove pipeline delivering Heap drain-down to No. 1 Shaft, - Backfill the shaft, - Assess soil along the pipeline route for corrective action, - Excavate polluted soils and dispose in an appropriate manner, - Place concrete cap over No. 1 Shaft below grade, - Cover with fill and grade slopes for drainage control, - Re-vegetate area.
25	E-19	Wood Landfill	32º41'08"N 110º41'08"W	Facility to remain	The BADCT for this facility shall include the following: - Re-grade and contour slopes for drainage, - Place a soil cover no less than 30 inches over the facility site, - Install berms and drainage channels to minimize ponding, - Re-vegetate area, - File restrictive covenant with Pinal County and ADEQ.
26	E-39	Solid Waste Landfill	32º41'07"N 110º41'20"W	Facility to remain	The BADCT for this facility shall include the following: - Re-grade and contour slopes for drainage, - Place a soil cover no less than 30 inches over the facility site, - Install berms and drainage channels to minimize ponding, - Re-vegetate area, File restrictive covenant with Pinal County and ADEQ.

TABLE 1A REQUIRED INSPECTIONS AND OPERATIONAL MONITORING		
FACILITY	**QUARTERLY INSPECTIONS AND ANNUAL REPORTING**	**PERFORMANCE LEVEL**
Diversion Structure	Inspect diversion channel and pipeline monthly and after significant storm event. Check rip-rap integrity. Monitor flow rate.	Free draining to the pit.
In-Situ Mine and (Future) Pit Lake	(To be determined)	(To be determined)
Ridgeline Waste Rock Dump	Inspect stormwater drainage network and soil cover monthly and after a significant storm event.	Drainage network free of obstructions. Maintain soil cover.
No. 1/No. 4 Shaft Waste Rock Dump	Inspect stormwater drainage network and soil cover quarterly and after significant storm events.	Drainage network free of obstructions. Maintain soil cover
No. 3 Shaft Development Dump	Inspect stormwater drainage network and soil cover quarterly and after significant storm events.	Drainage network free of obstructions Maintain soil cover.
No. 1 Stockpile and No. 1 Satellite	Inspect stormwater drainage network quarterly and after significant storm events.	Drainage network free of obstructions.
Main Gate Parking Lot Dump	Inspect and maintain erosion control structures quarterly and after significant storm event.	Drainage network free of obstructions.
Heap Leach Facility	Inspect stormwater drainage network and soil cover monthly and after a significant storm event.	Drainage network free of obstructions. Maintain soil cover.
Mine Site - General	Inspect stormwater drainage network and soil cover monthly and after a significant storm event.	Drainage network free of obstructions. Maintain soil cover.
CON E-3	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead
CR-1	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead
BK-1	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead
BK-2	Inspect well head integrity	Lock on wellhead cap. No visible damage on wellhead
BF-1	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead
BF-2	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead
BF-3	Inspect wellhead integrity	Lock on wellhead cap. No visible damage on wellhead

TABLE 1A REQUIRED INSPECTIONS AND OPERATIONAL MONITORING (continued)		
FACILITY	**QUARTERLY INSPECTIONS AND ANNUAL REPORTING**	**PERFORMANCE LEVEL**
Solid Waste Landfill	Drainage control, and cover integrity. Operational response actions shall be recorded in the logbook and reported in the Annual Report. Inspect gas monitoring wellhead integrity.	Drainage control system free of obstructions and breaches. Cover in place over debris. Lock on wellhead cap. No visible damage on wellhead.
Wood Landfill	Inspect drainage control and cover integrity. Operational response actions shall be recorded in the logbook and reported in the Annual Report.	Drainage control system free of obstructions and breaches. Cover in place over debris.

TABLE 1B PARAMETERS FOR AMBIENT GROUNDWATER MONITORING FOR POINT OF COMPLIANCE WELL CR-1		
Depth to Water (in feet)	Sodium	Nickel
Water Level Elevation (in feet amsl)	Iron	Selenium
Temperature – field (°F)	Aluminum	Thallium
Field Specific Conductivity (µmhos/cm)	Antimony	Zinc
pH – Field & Lab (S.U.)	Arsenic	Free Cyanide
Total Dissolved Solids	Barium	Uranium
Sulfate	Beryllium	Total Petroleum Hydrocarbons
Total Alkalinity	Cadmium	Gross Alpha Particle Activity (pCi/L)[1]
Chloride	Chromium	Radium 226 + Radium 228 (pCi/L)
Fluoride	Cobalt	
Nitrate + Nitrite	Copper	
Calcium	Lead	
Magnesium	Manganese	
Potassium	Mercury	

(1) If gross alpha particle activity is greater than fifteen (15) pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity, including radium 226, minus radon and total uranium (the sum of uranium 238, uranium 235 and uranium 234 isotopes in pCi/L).

Notes:
All concentrations are in milligrams per liter (mg/L) unless otherwise specified.
Metals shall be analyzed as dissolved metals.

TABLE 1C Annual Compliance Groundwater Monitoring Requirements for Points of Compliance

PARAMETER	BK-1 AQL[1]	BK-1 AL[2]	BK-2 AQL	BK-2 AL	CON E-3 AQL	CON E-3 AL	CR-1 AQL	CR-1 AL
Depth to Water (in feet)	Monitor[3]	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Water Level Elevation (feet amsl)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
pH (S.U.)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Temperature (°F)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Specific Conductance (µmhos/cm)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sulfate	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Total Alkalinity	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Chloride	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Fluoride	4.0	3.2	4.0	3.2	4.0	3.2	4	3.2
Nitrate + Nitrite	10	8.0	10	8.0	10	8.0.	10	8
Calcium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Magnesium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Potassium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Sodium	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Iron	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Aluminum	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Antimony	0.006	0.004	0.006	0.004	0.006	0.004	0.006	0.0048
Arsenic	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Barium	2.0	1.6	2.0	1.6	2.0	1.6	2	1.6
Beryllium	0.004	0.0032	0.004	0.0032	0.004	0.0032	0.004	0.0032
Cadmium	0.005	0.004	0.005	0.004	0.005	0.004	0.005	0.004
Chromium	0.10	0.08	0.10	0.08	0.10	0.08	0.10	0.08
Cobalt	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Copper	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Lead	0.050	0.040	0.050	0.040	0.050	0.040	0.05	0.04
Manganese	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Mercury	0.0020	0.0016	0.0020	0.0016	0.0020	0.0016	0.002	0.0016
Nickel	0.1	0.08	0.1	0.08	0.1	0.08	0.10	0.08
Selenium	0.050	0.040	0.050	0.040	0.050	0.040	0.05	0.04
Thallium	0.002	0.0016	0.002	0.0016	0.002	0.0016	0.002	0.0016
Zinc	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Free Cyanide	0.2	0.16	0.2	0.16	0.2	0.16	0.2	0.16
Total Petroleum Hydrocarbons	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L)[4]	15	12	15	12	15.0	12.0	15	12
Radium 226 + Radium 228 (pCi/L)	5.0	4.0	5.0	4.0	5.0	4.0	5	4
Uranium (mg/L)	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor	Monitor

(1) AQL = Aquifer Quality Limit.
(2) AL = Alert Level.
(3) Monitor = Monitoring required, but no AQL or AL established in the permit.
(4) If the gross alpha particle activity is greater than fifteen (15) pCi/L, then test for adjusted gross alpha particle activity. The

adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes) reported in pCi/L.

Notes:
All concentrations are in milligrams per liter (mg/L) unless otherwise specified.
Metals shall be analyzed as dissolved metals.

TABLE 1D QUARTERLY GROUNDWATER MONITORING REQUIREMENTS FOR ALERT LEVEL WELLS

PARAMETER	AWQS[1]	BF-2 AQL[2]	BF-2 AL[3]	BF-3 AQL	BF-3 AL
Depth to Water (in feet)	---	Monitor[4]	Monitor	Monitor	Monitor
Groundwater Elevation (in feet amsl)	---	Monitor	Monitor	Monitor	Monitor
pH (S.U.)	---	Monitor	Monitor	Monitor	Monitor
Temperature (°F)	---	Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids	---	Monitor	Monitor	Monitor	Monitor
Electrical Conductance (µmhos/cm)	---	Monitor	Monitor	Monitor	Monitor
Fluoride	4.0	Monitor	3.2	Monitor	3.2
Nitrate + Nitrite	10.0	Monitor	8.0	Monitor	8.0
Sulfate	---	Monitor	Monitor	Monitor	Monitor
Arsenic	0.05	Monitor	0.040	Monitor	0.040
Cadmium	0.005	Monitor	0.004	Monitor	0.004
Copper	---	Monitor	Monitor	Monitor	Monitor
Selenium	0.05	Monitor	0.082	Monitor	0.16
Thallium	0.002	Monitor	0.0016	Monitor	0.0016

(1) AWQS = Aquifer Water Quality Standard
(2) AQL = Aquifer Quality Limit
(3) AL = Alert Level
(4) Monitor = Monitoring required, but no AQL or AL established in the permit.

Notes:
All concentrations are in milligrams per liter (mg/L) unless otherwise specified.
Metals shall be analyzed as dissolved metals.

TABLE 1E BIENNIAL GROUNDWATER MONITORING REQUIREMENTS FOR ALERT LEVELWELLS

PARAMETER	AWQS[1]	BF-2 AQL[2]	BF-2 AL[3]	BF-3 AQL	BF-3 AL
Depth to Water (in feet)		Monitor[4]	Monitor	Monitor	Monitor
Groundwater Elevation (in feet amsl)		Monitor	Monitor	Monitor	Monitor
pH (S.U.)		Monitor	Monitor	Monitor	Monitor
Temperature (°F)		Monitor	Monitor	Monitor	Monitor
Total Dissolved Solids		Monitor	Monitor	Monitor	Monitor
Specific Conductance (µmhos/cm)		Monitor	Monitor	Monitor	Monitor
Sulfate		Monitor	Monitor	Monitor	Monitor
Total Alkalinity		Monitor	Monitor	Monitor	Monitor
Chloride		Monitor	Monitor	Monitor	Monitor
Fluoride	4.0	Monitor	3.2	Monitor	3.2
Nitrate+Nitrite	10.0	Monitor	8.0	Monitor	8.0
Calcium		Monitor	Monitor	Monitor	Monitor
Magnesium		Monitor	Monitor	Monitor	Monitor
Potassium		Monitor	Monitor	Monitor	Monitor
Sodium		Monitor	Monitor	Monitor	Monitor
Iron		Monitor	Monitor	Monitor	Monitor
Antimony	0.006	Monitor	0.0048	Monitor	0.0048
Arsenic	0.050	Monitor	0.040	Monitor	0.040
Barium	2.0	Monitor	1.6	Monitor	1.6
Beryllium	0.004	Monitor	0.0032	Monitor	0.0032
Cadmium	0.005	Monitor	0.004	Monitor	0.004
Chromium	0.10	Monitor	0.08	Monitor	0.08
Copper		Monitor	Monitor	Monitor	Monitor
Lead	0.050	Monitor	0.040	Monitor	0.040
Manganese		Monitor	Monitor	Monitor	Monitor
Mercury	0.002	Monitor	0.0016	Monitor	0.0016
Nickel	0.10	Monitor	0.08	Monitor	0.08
Selenium	0.050	Monitor	0.082	Monitor	0.16
Thallium	0.002	Monitor	0.0016	Monitor	0.0016
Zinc [7]		Monitor	Monitor	Monitor	Monitor
Free Cyanide	0.20	Monitor	0.16	Monitor	0.16
Total Petroleum Hydrocarbon (TPH)		Monitor	Monitor	Monitor	Monitor
Gross Alpha Particle Activity (pCi/L) [5]	15.0	Monitor	12.0	Monitor	12.0
Radium 226 + Radium 228 (pCi/L)	5.0	Monitor	4.0	Monitor	4.0
Uranium		Monitor	Monitor	Monitor	Monitor

(1) AWQS = Aquifer Water Quality Standard
(2) AQL = Aquifer Quality Limit.
(3) AL = Alert Level.
(4) Monitor = Monitoring required, but no AQL or AL established in the permit.
(5) If the gross alpha particle activity is greater than fifteen (15) pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes reported in pCi/L).

Notes:
Metals shall be analyzed as dissolved metals.
All concentrations are in milligrams per liter (mg/L) unless otherwise specified.
Use Section 4.2, Table 1D parameter list for quarterly sampling events.

TABLE 1F PROCESS SOLUTION AND MINE WATER COMPLIANCE MONITORING REQUIREMENTS	
PARAMETER	**MONITORING FREQUENCY**
Flow (estimated in gallons per minute)	Quarterly
Specific Conductance (µmhos/cm)	Quarterly
Temperature (°F)	Quarterly
pH (S.U.)	Quarterly
Total Dissolved Solids	Annual
Sodium	Annual
Potassium	Annual
Calcium	Annual
Magnesium	Annual
Sulfate	Annual
Chloride	Annual
Fluoride	Annual
Beryllium	Annual
Thallium	Annual
Bicarbonate alkalinity as $CaCO_3$	Annual
Aluminum	Annual
Arsenic	Annual
Cadmium	Annual
Chromium	Annual
Cobalt	Annual
Copper	Annual
Iron	Annual
Lead	Annual
Manganese	Annual
Mercury	Annual
Selenium	Annual
Total Petroleum Hydrocarbons	Annual
Gross Alpha Particle Activity (pCi/L) [1]	Biennial
Radium 226 + Radium 228 (pCi/L)	Biennial
Uranium	Biennial

(1) If the gross alpha particle activity is greater than fifteen (15) pCi/L, then test for adjusted gross alpha particle activity. The adjusted gross alpha particle activity is the gross alpha particle activity including radium 226, minus radon and total uranium (the sum of the uranium 238, uranium 235 and uranium 234 isotopes reported in pCi/L).

Notes:
Metals shall be analyzed as dissolved metals.
All concentrations are in milligrams per liter (mg/L) unless otherwise specified.
Mine water = Water quality samples from the Pit Lake and the No. 5 Shaft.

5.0 REFERENCES AND PERTINENT INFORMATION

The terms and conditions set forth in this permit have been developed based upon the information contained in the following, which are on file with the Department:

1. APP Application dated March 17, 2008.
2. Public Notice, dated February __, 2009.
3. Public Hearing, dated _____.
4. Responsiveness Summary, dated _____.

6.0 NOTIFICATION PROVISIONS

6.1 Annual Registration Fees

The permittee is notified of the obligation to pay an Annual Registration Fee to ADEQ. The Annual Registration Fee is based upon the amount of daily influent or discharge of pollutants in gallons per day as established by A.R.S. § 49-242.

6.2 Duty to Comply [A.R.S. §§ 49-221 through 49-263]

The permittee is notified of the obligation to comply with all conditions of this permit and all applicable provisions of Title 49, Chapter 2, Articles 1, 2 and 3 of the Arizona Revised Statutes, Title 18, Chapter 9, Articles 1 through 4, and Title 18, Chapter 11, Article 4 of the Arizona Administrative Code. Any permit non-compliance constitutes a violation and is grounds for an enforcement action pursuant to Title 49, Chapter 2, Article 4 or permit amendment, suspension, or revocation.

6.3 Duty to Provide Information [A.R.S. §§ 49-243(K)(2) and 49-243(K)(8)]

The permittee shall furnish to the Director, or an authorized representative, within a time specified, any information which the Director may request to determine whether cause exists for amending or terminating this permit, or to determine compliance with this permit. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

6.4 Compliance with Aquifer Water Quality Standards [A.R.S. §§ 49-243(B)(2) and 49-243(B)(3)]

The permittee shall not cause or contribute to a violation of an aquifer water quality standard at the applicable point of compliance for the facility. Where, at the time of issuance of the permit, an aquifer already exceeds an aquifer water quality standard for a pollutant, the permittee shall not discharge that pollutant so as to further degrade, at the applicable point of compliance for the facility, the water quality of any aquifer for that pollutant.

6.5 Technical and Financial Capability

[A.R.S. §§ 49-243(K)(8) and 49-243(N) and A.A.C. R18-9-A202(B) and R18-9-A203(E) and (F)]

The permittee shall have and maintain the technical and financial capability necessary to fully carry out the terms and conditions of this permit. Any bond, insurance policy, trust fund, or other financial assurance mechanism provided as a demonstration of financial capability in the permit application, pursuant to A.A.C. R18-9-A203(D), shall be in effect prior to any discharge authorized by this permit and shall remain in effect for the duration of the permit.

6.6 Reporting of Bankruptcy or Environmental Enforcement [A.A.C. R18-9-A207(C)]

The permittee shall notify the Director within 5 days after the occurrence of any one of the following:

1. The filing of bankruptcy by the permittee.
2. The entry of any order or judgment not issued by the Director against the permittee for the enforcement of any environmental protection statute or rule.

6.7 Monitoring and Records [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A206]

The permittee shall conduct any monitoring activity necessary to assure compliance with this permit, with the applicable water quality standards established pursuant to A.R.S. §§ 49-221 and 49-223 and §§ 49-241 through 49-252.

6.8 Inspection and Entry [A.R.S. §§ 41-1009, 49-203(B) and 49-243(K)(8)]

In accordance with A.R.S. §§ 41-1009 and 49-203(B), the permittee shall allow the Director, or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to enter and inspect the facility as reasonably necessary to ensure compliance with Title 49, Chapter 2, Article 3 of the Arizona Revised Statutes, and Title 18, Chapter 9, Articles 1 through 4 of the Arizona Administrative Code and the terms and conditions of this permit.

6.9 Duty to Modify [A.R.S. § 49-243(K)(8) and A.A.C. R18-9-A211]
The permittee shall apply for and receive a written amendment before deviating from any of the designs or operational practices specified by this permit.

6.10 Permit Action: Amendment, Transfer, Suspension & Revocation
[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]
This permit may be amended, transferred, renewed, or revoked for cause, under the rules of the Department.

The permittee shall notify the Groundwater Section in writing within 15 days after any change in the owner or operator of the facility. The notification shall state the permit number, the name of the facility, the date of property transfer, and the name, address, and phone number where the new owner or operator can be reached. The operator shall advise the new owner or operators of the terms of this permit and the need for permit transfer in accordance with the rules.

7.0 ADDITIONAL PERMIT CONDITIONS

7.1 Other Information [A.R.S. § 49-243(K)(8)]

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, the permittee shall promptly submit the correct facts or information.

7.2 Severability

[A.R.S. §§ 49-201, 49-241 through 251, A.A.C. R18-9-A211, R18-9-A212 and R18-9-A213]

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby. The filing of a request by the permittee for a permit action does not stay or suspend the effectiveness of any existing permit condition.

7.3 Permit Transfer

This permit may not be transferred to any other person except after notice to and approval of the transfer by the Department. No transfer shall be approved until the applicant complies with all transfer requirements as specified in A.A.C. R18-9-A212(B) and (C).